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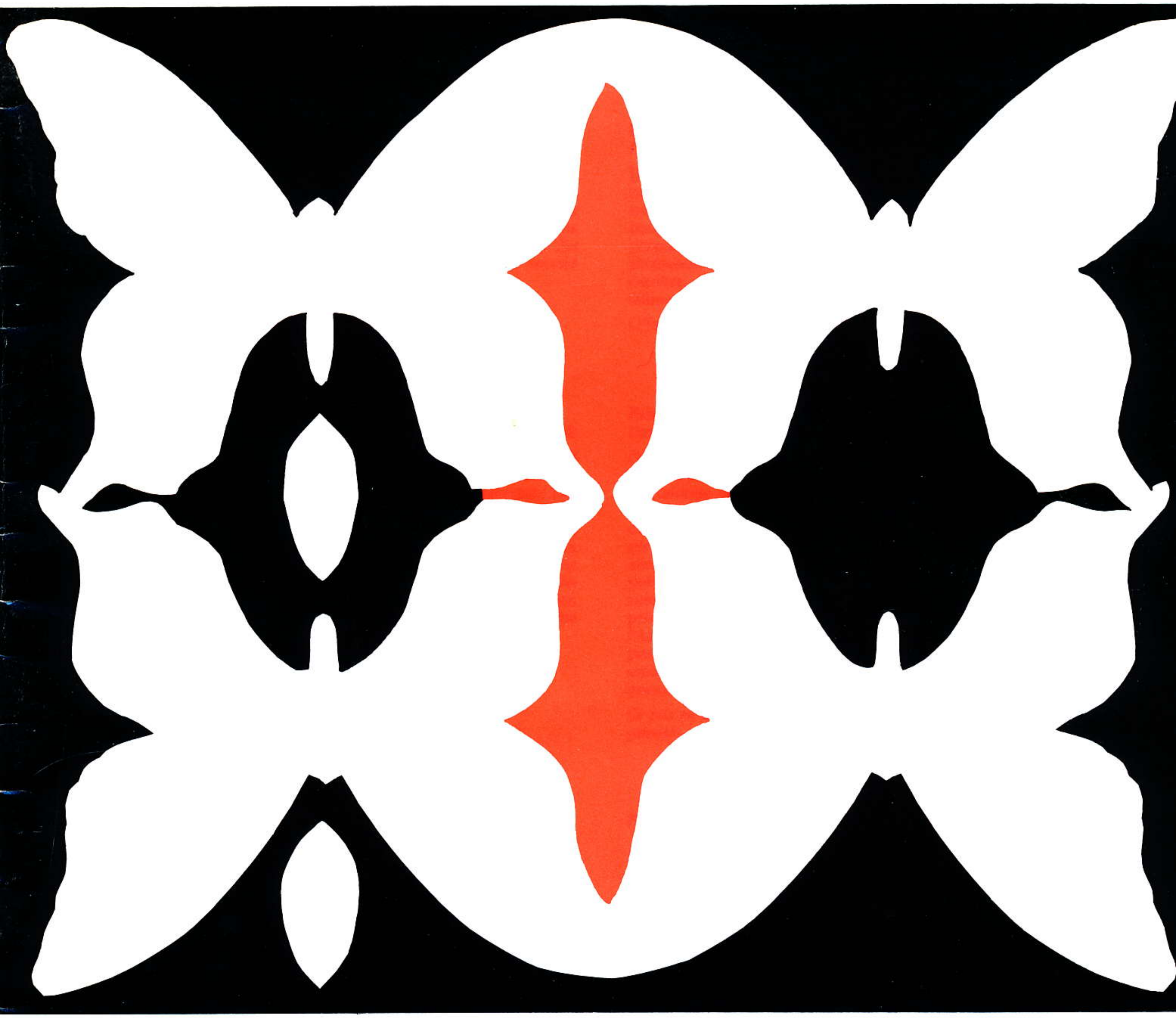

Flight of the Butterflies

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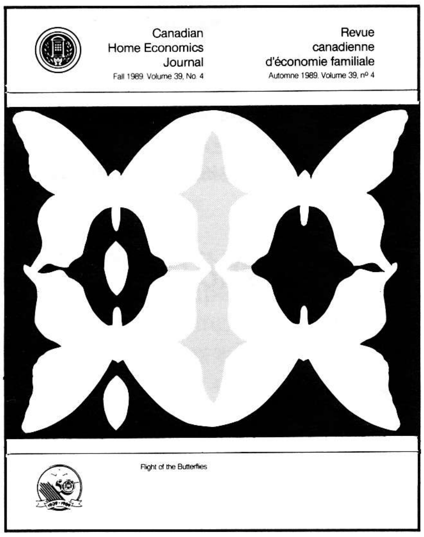

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Microwaveability: The New Wave Considerations in Food Product Formulation

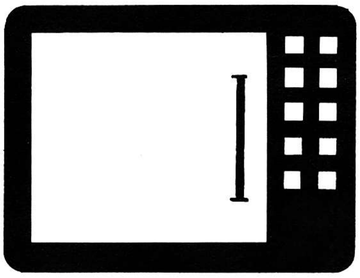
Judith D. Fraser and Eileen L. LeBlanc

Abstract

Advances in microwave technology have made the microwave oven a standard household and foodservice appliance that provides a viable alternative to conventional cooking methods because of energy and time saving benefits. Both consumer and institutional users have increased their demand for convenient, high quality, nutritious, microwaveable food products. As a result, acceptability criteria now challenge food processors and home economists in different ways. It is therefore of interest to review the diverse food quality characteristics associated with microwave reconstitution and to present some ingredient changes that can enhance the important sensory parameters.

Résumé

Les progrès enregistrés dans la technologie des micro-ondes ont fait du four micro-ondes un outil domestique et un appareil de service offrant une alternative intéressante aux méthodes de cuisson traditionnelles grâce à l'économie de temps et d'énergie. Les consommateurs et institutions ont accru leur demande en produits pratiques, nutritifs, de haute qualité et pouvant aller au four micro-ondes. Resultat: les responsables du traitement des aliments ainsi que les professionnels de l'économie familiale affrontent désormais de façons différentes les critères d'acceptabilité. Il est donc intéressant de revoir les diverses caractéristiques de qualité des aliments associées à la reconstitution micro-ondes et de présenter certains changements dans les ingrédients pouvant rehausser les paramètres sensoriels importants.



Microwaveability is one of the most challenging evolving technologies in today's food industry (Messenger, 1986a). The microwave oven, considered a luxury item when introduced to the consumer in 1967, has gained popularity as a standard household appliance by providing convenience and speed in meal preparation (Anon., 1987b). In addition, microwaves are used extensively in large-scale feeding operations to thaw and/or heat conventionally-prepared, chilled, and frozen foods or cook-chilled/frozen products (Vanderstoep, 1988).

Staman (1988) reported that consumers were willing to pay for both the convenience of microwave ovens and prepared food products to meet the time constraints of today's lifestyle. Microwave oven ownership is no longer limited to the more affluent segment of society. Recent statistics (Sacharow, 19899; Staman, 1988) indicate that these appliances have become popular with lower income households, singles, children, teenagers, and the elderly. Concomitantly, the food industry has intensified its efforts to satisfy and profit from such consumer demand by formulating and packaging foods specifically for reconstitution in the microwave oven (Andres, 1987a; Messenger, 1986b). Their commitment to microwave research and development has resulted in increased numbers of new microwaveable products on supermarket shelves (Messenger, 1986b). Products developed and test marketed have progressed from the traditional popcorn, pizza, and potato products to items such as cake mixes, coffee bags, nachos, breakfast entrees, sandwiches, main course entree items, and side dishes (Friedman, 1987; Rice, 1987). Recently, microwaveable frozen baby food and several lines of entrees specifically designed for children have become available (Anon., 1988c; Friedman, 1989; Morris, 1989).

In addition to this desire for convenience foods, consumers have become increasingly concerned about health-

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related issues. As a result, there is a great demand for foods that are not only aesthetically appealing but of high nutritional value and safe to eat (Vandersteop, 1988). A considerable amount of research has focussed on the nutrient retention and microbiological safety of foods cooked in the microwave (Cross & Fung, 1982; Vanderstoep, 1988). Hoffman & Zabik (1985) attributed equal or better retention of nutrients to variable power levels during microwave reconstitution because of the greater control on heating rates in the microwave. Waterless microwave reconstitution of vegetables appears to improve retention of water-soluable vitamins by eliminating leaching. In addition, shorter microwave cooking times increase the retention of heat-labile nutrients (Knutson, Marth & Wagner, 1987).

Nevertheless, both the shorter and in some instances, uneven cooking/reheating during microwave reconstitution have raised questions about microbial food safety (Fung & Cunningham, 1980). This is of special concern to foodservice operations that reheat precooked food items for hospitalized patients who may be at increased risk for foodborne illnesses (Ollinger-Snyder & Matthews, 1988). Studies by various researchers (Fung & Cunningham, 1980; Ollinger-Synder & Matthews, 1988) have shown that foodborne disease outbreaks result from carelessness and failure to adhere to appropriate standards regardless of reconstitution method. Hence, it is imperative for foodservice employees and nursing staff to adhere to established standards for the food item being rethermalized.

Problems Inherent to Microwave Reconstitution

Microwave product development poses a challenge to the food industry because microwave reconstitution is a physically different mechanism of food preparation. In conventional cookery, heat is applied to the exterior surface of a food by convection, radiation, or conduction, and subsequently it is transmitted to the interior of the food product. In contrast, heat is generated during microwave reconstitution by intermolecular friction within the food as molecules align in the rapidly changing electric field (Cross & Fung, 1982). Because of these differences in heating, more factors have to be considered to achieve and maintain quality in microwave-prepared foods (Best, 1987b). The major deficiencies reported for foods prepared in microwave appliances include 1) lack of crisping and browning, 2) uneven heat distribution, and 3) compromised flavor development. These problems must be addressed by food manufacturers if their microwaveable products are to be successful in the marketplace (Anon., 1988d). To achieve this, literature has shown that the product, the package, and the microwave process must be simultaneously considered in the design of the microwaveable food system (Rothenberger, 1987). Fraser & LeBlanc (1989) recently reviewed packaging solutions. This paper focusses on the interaction of microwaves with ingredients and the formulation adjustments that may enhance the sensory and quality characteristics of a microwaveable food system.

Lack of Crisping and Browning

In conventional cooking, a food's high surface temperature causes dehydration that leads to crisping, browning, and retention of moisture (Best, 1987b). Conversely, in microwave cooking moisture is released from the food by the friction from molecular collisions. This limits crisping and browning particularly in products which require an even distribution of these characteristics (Anon., 1987b). In a breaded food, moisture migrates from the product to the breading and results in decreased crispness and unacceptable sogginess. The development of crisp, microwaveable breaded products has challenged food scientists (Anon., 1985) but some advances have been made by use of specialty flours and starches (Table 1). Alternatively, gums such as methyl cellulose can form film barriers between the food and the breading to achieve crispness by preventing escape of the interior juices and steam (Anon., 1985; Best, 1987b) during the process of thermal gelation. Similarly, xanthan gum (Anon., 1987a), other starches, dextrins, and de-germinated flours have been incorporated into batter mixes for crisping and browning (Duthie, 1986).

Some manufacturers prebake or precook products to brown the food prior to rethermalization in the microwave. For example, meats have been prebaked or pregrilled complete with grill marks. To prevent the development of a "warmed-over" character note, a flavor system and/or antioxidant may be required in the formulation. Alternatively, direct surface browning and the Maillard reaction may be achieved by coating the product with lecithin and various salts that promote exterior heating. Best (1987b) found this particularly useful when combined with susceptor packaging (metal particles laminated to paper or paperboard trays) that creates a hot-plate effect during microwave reconstitution (Lingle, 1987).

Uneven Heat Distribution

In conventional cookery, foods absorb high-temperature energy from their environment over a period of time. In contrast, foods prepared in the microwave are subjected to an electromagnetic field at ambient room temperature and heat energy is generated by the product's own ingredients as a result of several energy-transfer mechanisms (Schiffman, 1986). Molecules with dipolar charges such as water, oscillate in the rapidly fluctuating magnetic field and the heat of friction generated coincides with the radiation of heat in the food (Best, 1987b; Little & Norman, 1985). Foods with a high water content heat more rapidly than high-fat foods which have little electrical polarity. It is noteworthy that foods containing chloride and sodium ions cause oscillation which contributes further to the heat of friction and an

Table 1. Products that promote crisping during microwave reconstitution.

Product	Supplier
Methocel gums	Dow Chemical Methocel Food Gums Division, Midland, MI.
Special breading crumbs #4021 (white/mild corn flavor) #1421 (reddish brown/mild corn flavor) #7008 (sandy/yellow Mexican taco flavor)	T & G Associates, Inc., Glenview, IL.
Micro-Crisp, MicroCrisp D, N-Coat	National Starch & Chemical Corp., Bridgewater, NJ.
Keltro®T (xanthan gum)	Kelco, San Diego, CA.

increase in the rate of microwave heating. Thus it is evident that the heat energy produced is effected by the particular food's ingredient composition.

Another consideration is variation in the specific heat required as energy to raise the temperature of an ingredient in a food. The lower the specific heat, the more rapid the energy transfer. Bacon heats more quickly than leaner meats, cooking oil heats faster than water (Best, 1987b), and high sugar products heat more rapidly than those with a lower content (Duthie, 1986).

The heat conduction properties of ingredients can be used advantageously to distribute heat throughout a product. An example of this is the application of butter coatings around popcorn kernels where the viscosity of the system as well as the food's specific heat affects the heat distribution within the food. The mobility of water and its low viscosity readily distributes heat in a food before evaporating as steam. This affects the differential heating behaviour of individual components in multicomponent foods such as filled desserts and meat and gravy combinations (Best, 1987b). In summary, the dielectrical properties that are important at microwave frequency are related to the food's moisture, solids, and salt content. Equations are available to calculate this as a function of frequency and temperature (Mudgett, 1986). As more dielectric data become available, food technologists should and will develop products which optimize use of microwave energy (Curran, 1987).

Another key factor in microwave product design is geometry. Round shapes concentrate microwave energy towards the centre of the product. This can be used to advantage in product formulation or packaging. An example of the latter is the doughnut-type package used for microwave popcorn to promote even heat distribution. As well, variations in product thickness or density may cause nonuniformity in microwave heating rates (Best, 1987b). Microwaves instantly penetrate porous foods such as breads; dense foods such as meats exhibit exterior absorption with the centre heated by conduction (Duthie, 1986). Less dense foods heat more evenly within a given time period whereas a slower heating rate occurs in products of large mass (Best, 1987b).

Research by Best (1987b) and Schiffman (1982) has shown that the actual physical state of ingredients must be considered. Ice, which is very transparent to microwaves, requires a large amount of energy to induce thawing; conversely water is highly absorbent. When defrosting frozen foods, the water formed absorbs microwave energy and results in runaway heating even though ice remains. If the appliance has a defrost mode it can be used to compensate for the rate and uniformity of heat distribution (Schiffman, 1982). As well, formulation changes can counteract ice crystallization. Best (1987b) found that addition of sugars lowered the food's freezing point and that the addition of salts increased both microwave absorption and heating rates. However, formula alterations must be carried out with caution because other problems may result. Schiffman (1985) showed that addition of salt to meat led to synersis and surface heating because of the effects of the concentrated salt solution. Nevertheless, the Johnston Company, Milwaukee, WI took advantage of microwave absorption and heating rate when developing the microwaveable sundae 'Hot Scoop'. A frozen scoop of vanilla ice cream surrounded by a fudge topping is selectively heated as a result of the ice cream's specific heat and its crystalline water that remains transparent to the microwaves (Anon., 1987b).

Compromised Flavor Development

Both Curran (1987) and Andres (1987a) found that the short duration of heating at high temperatures in microwave reconstituted foods led to decreased amounts of volatile flavors. Less than optimum meat and poultry products result from microwave cooking because of rapid dehydration and flavor volatilization. In addition, LaBell (1987) found that the browning reactions necessary for flavor development and appearance do not occur because of the speed of microwave cooking. Some flavors may 'flash-off' leaving the product very bland (LaBell, 1988b). Similarly, Taki (1984) reported that spices and herbs do not develop their full flavor potential. As well, certain aromas produced during longer conventional cooking do not develop during microwave heating while some aromas are different from those produced in conventional heating (Andres, 1987a). Aromatic components of butter and cheese develop differently during microwave reconstitution (Anon., 1988b). Duplication of the sensory effects of conventional cooking in microwaveable products is not an easy task but is a facet of formulating successful products for the microwave (Huang, 1987).

To facilitate this challenge, the flavor industry has developed flavor systems specifically for microwaveable food formulations (Taki, 1984). Encapsulation of water-soluble flavors such as vanilla prevents volatization during the cooking process (Best, 1987b). Crust-like browned (Anon., 1987a), roasted or grilled flavors, and seafood flavors have become available (Anon., 1988b; Best, 1987a). Processed meat flavor concentrates can be used at low levels to enhance the "meaty" taste of a product without the addition of more meat to the formulation, a bonus for both the food processor and the diet-conscious consumer. Meat and fat flavors can also be used for "fat" flavor without the presence of saturated fat and calories in the formulation. Such meat flavors may be low in sodium; as well, Kosher products are feasible (LaBell, 1988a). Some of these advances are worthy of use in cook-chill/cook-freeze operations where products are subsequently rethermalized in the microwave. Other microwave flavors include graham cracker flavor, chocolate, and a variety of fruit flavors designed for microwaveable cupcakes, cakes, muffins, cookies, and breakfast foods. They simulate the baked flavor and address the demands of reheating (Anon., 1987a).

Fries and Fries, Cincinnati, OH has a line of microwaveable bakery, meat, and savory flavors which have been designed to resist volatilization, mask off-doors/off-flavors, and simulate flavor notes characteristic of time-dependent ingredient reactions. Their performance characteristics have been evaluated to identify the reactions common to conventional food preparation. For example, conventional cake baking flavor reactions were studied and through successful simulation chemistry the resulting flavor now can be added as an ingredient in a microwaveable cake mix formulation (Anon., 1988b).

Felton Worldwide, Brooklyn NY has developed Microloc™ flavor systems based on calculation of Delta T values that show the ratio of the compound's temperature increase to the temperature increase of a water standard (Anon., 1988e). Compounds with a high Delta T absorb more microwave energy and are suitable for applications that require browning and carmelization characteristics. Conversely, compounds with a low Delta T absorb less microwave energy and thereby prevent flavor loss in steam and evaporation. Combining the high and low Delta T flavor systems

can provide the pleasant 'flash-off' aroma of conventional cooking as well as intrinsic flavor retention (LaBell, 1988b).

Future Trends

The popularity of the microwave oven has had a dramatic effect on the food industry (Anon., 1988d). As microwave technology advances, new microwaveable food products continue to emerge. The availability of shelf stable entrees and refrigerated microwaveable entrees present strong competition for their frozen counterparts. Geo. A. Hormel Co., Austin, MN has developed vacuum-packed, retortable entrees in plastic serving dishes with ca. 18 month shelflife (Andres, 1987b). In Canada, Grainers Meats, Toronto, ON has introduced a new line of refrigerated, microwaveable entrees in plastic, retortable pouches with ca. 12 month shelflife (Anon., 1987c). Another trend is separately packaged "mix and match" meal components to allow consumers to select entrees, side dishes, vegetables, and desserts for individualization of menus (Rothenberger, 1987; Swientek, 1987). Stouffer Foods', Toronto, ON has developed such a line of microwave-only, single serve side dishes (Dornblaser, 1989).

Sales of 'heat-and take-out' items has increased dramatically with the installation of microwaves in convenience stores. These stores have become real competitors with fast food outlets for the consumers' away-from-home food dollar. This is supported by the fact that the 7-Eleven chain placed in the Top 10 of the restaurant industry with their near $1 billion dollars in fast food revenue (Williamson, 1988).

From a nutritional standpoint, the availability of a wide variety of microwaveable breakfast and lunch items is beneficial. The time-pressed individual who may have a tendency to skip meals can now have a quick, hot meal in a manner of minutes (Anon., 1988c). Recent research has indicated that 70% of people working have access to a microwave oven in the workplace (Anon., 1988d). Such information supported Campbell Soup Co's, Camdon, NJ introduction of 'Souper-Combo'®, a microwaveable soup and sandwich combination designed specifically for today's time-constrained, nutrition-conscious consumer. Other targets for this product have been mothers who wish to provide their children with a quick, nutritious meal and to teenagers for a lunch or snack. 'Souper-Combo'® has been specifically formulated to ensure optimum flavor and texture stability by incorporating an air space in the tray design to prevent sogginess of the rethermalized frozen product (Anon., 1988a). Stouffer Foods', Toronto, ON also has responded by introducing a line of Deli-Selection Handwiches™, a hand-held, single-serve, bun-type sandwich available in six varieties (Dornblaser, 1989). Their two minute microwave cooking time make them a nutritious, convenient 'eat-on-the-run' breakfast, lunch or snack competitively priced with fast food alternatives (Burn, 1989).

"Sales of 'heat and take-out' items has increased dramatically with the installation of microwaves in convenience stores"

Food manufacturers have also begun to meet the demand for low-calorie microwaveable products. However, a vast opportunity still exists to develop products for other special dietary needs particularly foods that are restricted in fat, and sodium, high in fibre, or calcium supplemented (Thoms, 1988). Con Agra Frozen Foods', Ballwin, MO recently introduced Healthy Choice™, a line of frozen reduced calorie, cholesterol, fat, and sodium dinners specifically designed for the nutrition-conscious consumer (Anon., 1989b).

The potential to design microwaveable products specifically for children is also of interest. The Campbell Microwave Institute reports that 99% of children between the ages of 6 to 17 use the microwave (Friedman, 1989). My Own Meals Inc., Deerfield, IL has formulated five varieties of retort pouch, shelf stable entrees based on the nutritional, taste, and portion requirements of children aged 2-8 (Morris, 1989). Presently, the Geo. A. Hormel and Co., Austin, MN are test marketing 'Kids Kitchen', a line of shelf stable entrees with ca. 18 month shelflife (Anon., 1989a; Friedman, 1989) and the Multi-National Co., Hastings-on-Hudson, NY are test marketing 'Mr. Food Meals', a line of frozen microwaveable entrees (Friedman, 1989).

The ever-changing demographics and trends of today's society present many challenges to food manufacturers. Although substantial progress has been made, a tremendous opportunity is available for development of items that utilize the maximum potential of the microwave. Successful manufacturers are and will continue to be those who have met the consumer's demand for convenience, nutritional quality, aesthetic appeal, and sensory equivalence to the consumer's image of the conventionally-prepared counterpart products. Home economists knowledgeable about those acceptability criteria for foods formulated and reconstituted in the microwave will be team members in developing these quality products. □

References

Andres, C. (1987a). Flavors for microwaveable foods. *Food Processing, 48*, 46.

Andres, C. (1987b). New line of shelf stable microwaveable foods enters testmarkets. *Food Processing*, **48**, 90, 92.

Anon. (1985). Gel barriers provide crisper breading, moister interior in microwaveable foods. *Prepared Foods, 155*, 136.

Anon. (1987a). Ingredients and packages for microwaveable foods. *Food Technology, 41*, 100, 102, 104.

Anon. (1987b). Microwaveable foods — Industry's response to consumer demands for convenience. *Food Technology, 41*, 52-62.

Anon. (1987c). Microwaveable retort pouch. *Prepared Foods, 156*, 137.

Anon. (1988a). Campbell Soup Co. Souper-Combo vegetable soup and cheeseburger. *Prepared Foods New Product Annual, 157*, 113.

Anon. (1988b). Microwave ingredients simulate conventional flavors. *Prepared Foods, 157*, 130.

Anon. (1988c). New microwave foods get rave reviews. *Prepared Foods, 157*, 134, 136.

Anon. (1988d). New product analysis: 'microwave-specific". *Food Engineering, 60*, 94, 96, 97.

Anon. (1988e). Tailoring microwaveable flavors with the . . . Delta T Theory. *Food Engineering, 60*, 55, 58.

Anon. (1989a). Microwaveable entrees are for children. *Food Engineering, 61*, 28.

Anon. (1989b). Frozen dual-oven dinners for health food devotees. *Food Processing, 50*, 161.

Best, D. (1987a). Engineering flavour systems. *Prepared Foods, 156*, 116-118, 122, 125, 126.

Best, D. (1987b). Microwave formulation: A new wave of thinking. *Prepared Foods, 156*, 70-72, 74.

Burn, D. Making microwave foods that work. *Food in Canada, 49*, 30, 32, 34, 38.

Cross, G.A., & Fung, D.Y.C. (1982). The effect of microwaves on nutrient value of foods. *CRC Critical Reviews in Food Science and Nutrition, 16*, 355-380.

Curran, R. (1987). Optimum reformulation of frozen food products for the microwave oven. *Microwave World, 8*, 5-7, 14.

Dornblaser, L. (1989). Stouffer unveils microwave-only line in Canada. *Prepared Foods, 158*, 69.

Duthie, A. (1986). Microwave foods coming of age. *Prepared Foods, 155*, 90-92.

Fraser, J.D., & LeBlanc, E.L. (1989). Microwaveability: The new wave in convenience foods packaging. *Canadian Home Economics Journal, 39*, 56-60.

Friedman, M. (1987). Another banner year for new product introductions. *Prepared Foods, 156*, 11, 12, 14, 15, 17.

Friedman, M. (1989). Food manufacturers keep kidding around. *Prepared Foods, 158*, 40.

Fung, D.Y., & Cunningham, F.E. (1980). Effect of microwaves on microorganisms in foods. *Journal of Food Protection, 43*, 641-650.

Hoffman, C.J., & Zabik, M.E. (1985). Effect of microwave cooking/reheating on nutrients and food systems. *Journal of the American Dietetic Association, 85*, 922-926.

Huang, H. (1987). New product concepts in microwaveable packaging. *Microwave World, 8*, 5-7.

Knutson, K.M., Marth, E.H., & Wagner, M.K. (1987). Microwave heating of food. *Lebensmittel-Wissenschaft Und Technologie, 20*, 101-110.

LaBell, F. (1987). Functional systems improve quality of microwave meats, poultry. *Food Processing, 48*, 63, 64.

LaBell, F. (1988a). Processed meat flavors aid microwave product taste. *Food Processing, 49*, 106, 108.

LaBell, F. (1988b). Theory explains design for microwave flavors. *Food Processing, 49*, 142-145.

Lingle, R. (1987). Finetuning microwaveable packaging. *Prepared Foods, 156*, 76-77, 80, 82.

Little, J., & Norman, N. (1985). Microwaves: High-tech ovens for traditional cuisine. *Canadian Hotel and Restaurant, 63*, 45, 46.

Messenger, B. (1986a). Pillsbury: 117 years old and feeling frisky. *Prepared Foods, 155*, 60-62, 64.

Messenger, B. (1986b). The 1987 annual trends report: Changing demographics light latest trends. *Prepared Foods, 155*, 39-40, 42-46.

Morris, C.E. (1989). Return of the . . . retort pouch. *Food Engineering, 61*, 44, 45, 46.

Mudgett, R.E. (1986). Microwave properties and heating characteristics of foods. *Food Technology, 40*, 84-93.

Ollinger-Snyder, P.A., Matthews, M.E. (1988). Cook/chill foodservice system with a microwave oven: Coliforms and aerobic counts from turkey rolls and slices. *Journal of Food Protection, 51*, 84-86.

Rice J. (1987). Food processors shifting into high gear to keep pace with accelerating consumer demand. *Food Processing, 48*, 51-76.

Rothenberger, R. (1987). Current product trends in microwaveable foods. *Microwave World, 8*, 12-14.

Sacharow, S. (1989). A sign of the times. *Food Processing, 50*, 24, 26.

Schiffman, R.F. (1982). Developing food products for domestic and commercial microwave ovens. *Microwave World, 3*, 9-11.

Schiffman, R.F. (1985). Developing foods for microwave ovens: Difficult . . . but the rewards are there. *Prepared Foods, 154*, 126-128.

Schiffman, R.F. (1986). Food product development for microwave processing. *Food Technology, 40*, 94-98.

Staman, M. (1988). The microwave marketplace. *Microwave World, 9*, 12, 13.

Swientek, R.J. (1987). Refrigerated dual-oven meals offer convenience and variety. *Food Processing, 48*, 24, 26, 30.

Taki, G.H. (1984). Giving consumers what they want. *Microwave World, 5*, 9, 10.

Thoms, S.J. (1988). Big 'niche' market: Microwaveable foods for . . . 45 plus. *Food Engineering, 137*, 48, 50.

Vanderstoep, J. (1988). The effect of microwaves on meat. *Meat Probe*. Issue #5. Vancouver, B.C.: Beef Information Centre.

Williamson, C. (1988). Microwaves in convenience stores. *Microwave World, 9*, 15.

Food Crisis in Africa

Dr. Leah Marangu

Abstract

Nations of the world are acknowledging and recognizing the role of women, particularly in the developing countries centred in food production and processing. A further step needs to be taken so that governments and policy makers can find ways of assisting women to play this important role in such a way that the resources are maximized. The purpose of this paper is to emphasize the African woman's untapped potential not for her recognition's sake, but in the hope that this information may be turned into tangible government policies.

Résumé

Les nations de partout au monde reconnaissent et acceptent le rôle des femmes, particulièrement au niveau du développement de pays centrés sur la production et le traitement des aliments. Il est nécessaire que les gouvernements et les responsables de politiques trouvent des façons d'aider les femmes à jouer ce rôle important et faire en sorte que les ressources soient maximisées. Le but de cet article est de faire prendre conscience du potentiel non utilisé de la femme africaine non pas au profit de sa reconnaissance mais dans l'espoir que ces renseignements se traduiront en des politiques gouvernementales concrètes.

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According to Dey 1984, the African continent is no longer self-sufficient in food production for her people. In the last decade alone, the increased food production has lagged behind the increase in food demand in 32 out of 41 Sub-Saharan countries. Meanwhile, grain imports have steadily risen. According to Ndegwa (1985), in 1980, Africa, south of the Sahara, produced 22% less food per capita than in 1970. At the same time net grain imports increased from 5 to 20 million tons between 1970 and 1985 (Brown and Wolf 1984). Among the many reasons for this increase are high population rate, rapid urbanization, growing food demands as a result of rising incomes, droughts, precarious rainfalls, bush fires, desertification, severe crop infestations, serious outbreaks of rinderpest and other livestock diseases, civil strife, refugee problems, shortage of production inputs, and inadequate socio-economic policies (FAO, 1974). FAO singled out at that time, three elements which they believed, if were effected, adequate food supply may be realized. They included increased production, stability of supplies, and accessibility of food (FAO 1974).

In an effort to recognize the role of women in food production as well as to assist their efforts, African leaders stipulated the following policies in the 1980 Lagos Plan of Action, which called on governments to first and foremost recognize women as vital instruments for solving the food crisis, and to make deliberate provisions to up-grade their skills and lessen their labour. They also identified the value of research, as they stated that it was important to continue research to promote the recognition and documentation of women's contributions to agriculture as a productive activity, especially in terms of food supply. Finally, they said that priority should be given to the establishment and strengthening of women's units in planning ministries to enable them to integrate a plan of action into national strategies.

The above statements call for a complete reorientation of strategies aimed at food production for survival, especially in African countries. They need to:

- Consider seriously agricultural policies that govern the management of women's affairs and welfare, including their status and all roles

aimed at promoting and maintaining food security.

- Reassess some of those policies which may be in conflict with social and cultural traditions of African communities and take appropriate action upon recommendations.
- Find appropriate means of compromising where those conflicts hinder progress. These may include women gaining:
  a) access to and control, to enable them to have complete control over what to plant, and to be able to use their title deed to get credit towards land developments.
  b) access to water, as fetching of water deprives women of time which could be allocated to doing other activities, but more so because water is a basic element of survival and farm management.
  c) access to farm inputs and market services.
  d) access to educational and farm management training.

Women need assistance in time allocation so as to effectively plan their expected multiple home and societal roles. Longhurst (1987) credited women on their ability to reduce the toll that could be taken by famine, when he said that a major reason that families have managed to overcome famine has been the women's considerable adaptability, together with their willingness to assume a significant, extra workload. This indeed has been the goal of home economics on family resource management for many years.

Hunger and Malnutrition

There is a direct relationship between adequate food provision and hunger. Hunger results in malnutrition, undernutrition, or both. Any of these has an adverse effect on human health. That is why every nation considers food provision a policy issue and a priority. Developed countries have responded very positively to the African food crises which resulted in famine, especially during the mid 1980s. However, on the African continent, starvation still continues to claim the lives of many people, especially children. In 1985, FAO estimated that almost one-quarter of all Africans were, at that time, undernourished and the UN Economic Commission for Africa estimated that starvation claimed more than one million lives between 1982 and 1985 (FAO 1986).

The health and status of women and children, who are major victims of hunger and malnutrition, affects total national development including food security. This vicious circle is made even more complicated by the fact that women, who play a major role in food security, also must, of necessity, be involved in the reproduction of society's members. These roles are not complimentary in that an active reproductive role both adds to the population growth problems, and thus causes negative economic demands. Negatively it affects women's health and therefore they become physically unfit to cope with the added economic strain caused by high population.

The effect of hunger and malnutrition does not only limited itself to individuals within the family, but spreads and touches national development. Malnutrition does not only negatively affect physical productivity of individuals, but retards mental development. This in turn retards national planning and development.

Women have always known the long term effect of malnutrition on children. This is why they have always worked very hard to sustain good nutritional status for their children. Increased awareness of policy makers and males about this fact, would hopefully result in assistance towards women in food production to achieve good sufficiency.

Division of Labour and Food Production

The passage of time has seen a drastic increase in the number of tasks the African woman is expected to perform within the space of a day. In the past, a woman's chief task was to gather food and prepare the day's meals and take care of the house. The men and children spend some time in the fields with the crops, and children had the responsibility of watching over the family's livestock.

"The health and status of women and children, who are major victims of hunger and malnutrition, affects total national development, including food security"

After independence, there began a trend of rural to urban migration, consisting mainly of men in search of wage-paying jobs in the industrial sector. Children, both boys and girls, began to attend schools in larger numbers due to government attempts to eradicate illiteracy. What this has meant for the woman is that there is nobody left to take up the duties abandoned by the other members of the family. The plight is further complicated by the fact that she also must devote a part of her land to the cultivation of cash crops alongside the traditional subsistence crops, since there are now increased financial demands on her family, such as school fees, uniforms, books, and other supplies, and even the support of her husband, who may not have been successful in finding a job good enough to support himself.

A study by ILO in 1981 on the division of labour in various activities in

Table 1. Division of Labour Between Men and Women: Rural Africa

	Percentage of Total Labour Hours	
Activity	Male	Female
1. Cutting down forest & staking out the field	90	5
2. Hunting	90	10
3. Turning the soil	70	30
4. Planting trees/cuttings	50	50
5. Caring for Domestic animals/cleaning stables	50	50
6. Harvesting	40	60
7. Marketing Excess/(Including transportation to Market)	40	60
8. Hoeing & Weeding	30	70
9. Transporting crops home from the fields	20	80
10. Storing crops	20	80
11. Processing food crops	10	90
12. Carrying water & fuel	10	90
13. Brewing	10	90
14. Feeding and caring for the young, the men, and the aged	5	95

Source: ILO 1981

Table 2.

- Adequate food depends on adequate.
  - Food Production Constraints
    - Poor Farm Implements
    - Climate Conditions
      - Droughts
      - Floods
    - 70% of food produced by women who
      - Play multiple roles yet with very little preparation and understanding of those roles as well as management of resource involved.
      - Have poor skills of food production and farm management.
      - Have no right to farming credit.
      - Have poor knowledge and skills of modern farm technology.
      - No right to land ownership
      - Whose divided efforts between production of cash crop and food crop.
    - Poor arable (marginal) lands.
  - Processing Constraints
    - Done by women and children with no skills of modern processing technology.
    - Limited knowledge to process food from one season to another and therefore hunger is experienced between seasons.
    - No intermediate technology available therefore daily processing is time consuming.
    - Western technology very expensive and therefore not applicable in rural areas.
    - Poor processing results in
      - Deprivation of future use of food.
      - Poor health through food contamination.
      - Food waste
      - Nutrient waste
    - Need to assist women in acquiring
      a) Processing skills
      b) Invention of intermediate technology.
      c) Appropriate for food processing
  - Storage Constraints
    - Lack of adequate storage management because of:
      a) Shortage of space
      b) Knowledge and skills.
      c) Storage implement including appropriate modern technology.
  - Transportation Constraints
    - Poor Roads
    - Poor coordination net work
    - Inadequate transportation implements both in quality and quantity.
  - Utilization Constraints
    - Social-Cultural practices
      a) Who eats what
      b) Who is served first
      c) Food taboos
    - Lack of utilization knowledge to maximize food utility in terms of:
      a) Nutritive value of various foods and best food mix.
      b) Best ways to save nutrients in available scarce food.
      c) Meal planning that maximizes use of other involved resources.
      d) Wise decisions in purchasing and trading of food stuffs.

    Food expenditure in relation to family budget: USA 18%; India 67%

Source: Marangin 1987

rural Africa, shows that women are heavily weighted in 11 out of 14 activities, the exceptions being hunting, clearing forests, and turning soil for planting.

Increased Production

Africa, south of the Sahara, needs to increase agricultural food production if it is to meet the demands of population growth. It is therefore important to examine agricultural policies of a particular country in relation to how best they can assist women who are the chief produces to improve their efficiency and effectiveness. The current uncertain rainfall patterns calls for agriculturalists to advise women on the appropriate drought resistant crops that may meet the food needs of their families. The process of food production may be viewed as a simple and straight forward activity. However, there are many indications that show the opposite is true.

Many constraints are experienced by women as they strive to fulfil this role alongside their many others. Marangu (1987) gave an analysis of constraints involved in food production. This is illustrated in Table 2.

An important consequence of all of the above, was observed between 1969-1971 and 1978-1980 when dietary energy supplied as a percentage of the dietary energy required, fell in 18 of 46 countries in Africa. (Dey, 1984).

Recent awareness and recognition of the role of women in food production,

which in turn leads to food security, directed African policy makers in 1980, to conclude that women, who are the chief producers of food, do not get a fair share of educational training in terms of acquisition of knowledge and skills.

Women throughout Africa are very much involved in the cultivation of cash crops, which in some households may be over-emphasized. Over-emphasizing cash crops at the expense of food crops does not always solve the nutritional needs of those involved. The assumption that the money earned from the cash crops would be used to purchase sufficient food for the families is not always accurate. Food may be purchased but it may not be enough. It is logical to conclude that in such a situation, poorer families would be even much more affected. The money generated from cash crops is not always enough to meet all other family needs besides their food. Food requirements, therefore, take second priority. This leads to nutritional deprivation in the family.

Food Processing and Storage

The goal of achieving food sufficiency requires that efficient methods of food production, processing, and storage be employed. People may be very actively involved in finding ways of improving food production efficiency, but they relax when it comes to processing and storage. This ends up frustrating efforts spent in food production for food sufficiency. There have been no actual measurements of the magnitude of post harvest losses, although the consensus of most people with experience in developing countries, is that most harvest losses of cereal grains are usually in the range of 5% to 30%, whereas for fruits and vegetables, roots and tubers, the losses are usually in the range of 15% to 60%, and even up to 100% in individual instances.

Women feature significantly in post harvest food activities. In food processing and storage of the harvested crop they participate up to 90% and 80% respectively (Lewis, 1981). Their extent of involvement includes activities concerning building granaries for grain storage, certain types of food processing such as pounding and milling of local grains, preparation of yams, cassava, bananas and plantain, and drying or pickling of fish which take extensive amount of time from women (Savane, 1981). In spite of their involvement, women do all that without support and without training.

The time has come when policy makers should realize that supporting women with needed production resources, skills and knowledge is a good economic investment. In many community activities, men are considerably less involved in those areas and get more than what they deserve in terms of training skills and technologies. Women's use of new technological methods applicable to food production, processing, and storage activities will further hasten the achievement of the objectives of food security.

The newly introduced technologies for women need to be evaluated in terms of appropriateness in both operation and cost. Some foods start deteriorating before harvest. Such losses must be minimized. Appropriate processing and storage methods need to be applied to halt the unnecessary wastage of scarce food. A peasant cannot afford constantly to lose over a quarter of the food she has produced, especially since her harvest, due to poor production practices, is already only half of its potential.

Good processing can assure adequate food for consumption and marketing. Some of the post harvest food losses occur due to insect attacks, mould growths, and biochemical changes. Simple food processing methods taught to women on how to prevent the above spoilage from taking place can save many grains and hence many lives. The use of simple but effective traditional food preservation and processing methods should be encouraged. These include sun-drying, fermentation, pickling, smoking, and salting. Apart from these traditional methods, modern technology has added the new techniques which are enjoyed by developed countries and city dwellers of the developing countries, such as freezing, irradiation, refrigeration, and a variety of other processing techniques (Savane, 1981) (IDRC Vol. 16. No. 4 October, 1987). Women are the main decision makers on post harvest farm operation despite the fact that they have very little or no knowledge and skill needed to make appropriate decisions and to operationalize them. Proper teaching of food processing, storage, and consumption skills, drastically enhance the after harvest utility whose loss affects food both in quality and quantity.

Women Education and Training

It is evident by this time that women are chief producers of food crops, as well as being largely involved in harvesting, processing and storage. This indeed is quite a complex process which demands extensive training in each of the areas concerned. Part of the famine and hunger problem in Africa does not only stem out of production constraints but also because of crop wastage during harvesting, storage, and processing. High illiteracy rates of women in Africa make the situation worse and explain why they are very poorly prepared for tasks they perform. Their food security skills including a working knowledge of new technology are nil. Lack of necessary knowledge and skills needed to perform the vital role effectively leads to inadequate results in food production. This in turn affects women's health and that of the family in general. There is evidence that the practice of disregarding women's training in vital areas still exists. Agriculture in general, is allocated 15% as compared to arts and crafts 50%, nutrition 90%, home economics 100%. No one has specifically defined the coverage in home economics and also nutrition. There is need to find out what impact these courses are making to family welfare and food security in relation to food production which receives only 15% of the teaching time. Are we sacrificing women's learning opportunities through emphasizing certain areas in a biased way? Instead more time is spent teaching women the stereotyped female roles. Women, who produce up to 80% of national foods are allocated only 15% and 90% of non-formal education in agriculture and animal production respectively. Arts and crafts take up to 50% of their training time. It is not specified whether or not these arts and crafts are for leisure or for income generating activities, but assuming that arts and crafts are intended to be an income generating activity, one can assume that once money is generated, some of it will be used for the purchase of food. The fact that women spend up to 90% of their time learning about nutrition implies that even where there is not enough food, nutritional problems can be solved by intensive nutritional education. While this assumption may be partly true, it may not be wholly correct. There has to be a minimum amount of available food to manage efficiently so as to meet the family nutritional needs. Thus, a critical look at food policies is needed. This should enable policy makers to recognize the actual role of women in food production and to identify needed areas

of assistance to enable them to perform their roles satisfactorly. One profession which has been given an opportunity to transform lives of women through education is home economics. Studies have shown that home economists are allocated the largest education time in the non-formal training time table. It has also been asserted that home economists who work with rural families are in a unique position to identify priorities among the rural areas.

Home economics professionals have been the target of attacks that they have retarded food security activities in that they have refused to recognize new changes and changes in teaching accordingly; that the approach taken in teaching of women in food production has limited itself to family meal patterns and nutritional status of food, without addressing itself to actual availability of food at the family table. The only agricultural activity which home economists are credited with, is that of the kitchen garden. The problem with domestic science was not that it tried to provide useful methods of housekeeping but that it raised this advice to the level of an ideology that denied women's capacity for work and management in any other setting than the home. Women are not encouraged to learn about or participate in that business which supports their homes (UNESCO, 1964). This is a very strong statement but then home economists are not in a very strong position to defend their status. They have watched women in development take over home economics skills to work with women on development activities.

African women can not afford to stay home and play the role of "housewives". Those who use the same western concept of housewives to teach African women home economic concepts would be completely disoriented. There is an urgent need for serious consideration and examination of our curriculum offerings in home economics in Africa in relation to women's roles and family needs especially on the African Continent. Re-examination of the curriculum and implementation of needed changes are imminent. We cannot continue to teach what has been decided is important content for the western world; neither can we afford to teach for an African upper class population.

Reorientation of Home Economics Teaching

A drastic change is needed in the reorientation of home economics teaching in Africa that will meet the family food security needs from production to harvesting, storage, processing and consumption. It is this totality of approach to our outlook in family food security that will make an impact in the nutritional status of our people. It will also address its objectives in a more realistic manner so that the concepts taught are in line with relevant women's activities where skills are needed. They will therefore attempt to equip women with those needed skills and knowledge. Appropriate allocation of teaching time will also be considered so that women's teaching time be allocated according to the extent of their role participation. □

Editor's Note:

Due to the extensive bibliography, there was insufficient space for printing. Copies are available from the Editor.

Call for Papers 1989-1990

The *Canadian Home Economics Journal* invites articles from home economists and others who share their interest in promoting the well-being of indivduals and families. Papers related to social issues affecting the home economics profession and professional practice, or providing information about professional subject fields are of particular interest.

Contributors will find the Guide for Authors in the Spring 1989 issue, pages 89-90.

Submission deadlines:

Winter	September 15, 1989
Spring	December 15, 1989
Summer	March 1, 1990
Fall	June 15, 1990

Demande d'articles 1989-1990

La *Revue canadienne d'économie familiale* invite des articles écrits par des spécialistes en économie familiale de même que ceux de toute personne intéressée à promouvoir le bien-être des individus et des familles. Les articles traitant d'aspects sociaux ou apportant quelque information que ce soit dans les divers champ du domaine de l'économie familiale sont particulièrement bienvenus.

Pour collaborer à la Revue, consulter le Guide des auteurs dans le numéro de printemps 1989, pages 89-90.

Dates limites d'envoi des manuscrits:

Hiver	15 septembre 1989
Printemps	15 décembre 1989
Été	1er mars 1990
Automne	15 juin 1990

The Effects of Omega-3 Fatty Acids on Total Cholesterol and High Density Lipoprotein Cholesterol in Humans

Maryse Therrien

Abstract

The effects of omega-3 fatty acids on blood cholesterol levels have been investigated more extensively in the past decade. It was a classical study conducted by Dyeberg and Bang (1972) which initiated subsequent research to investigate diets high in fish or fish oil concentrates. It was shown that Eskimo populations which consumed a diet high in marine fish had normal cholesterol levels and elevated high density lipoprotein (HDL) concentrations despite an elevated percentage of calories from fat in their diet. As research has progressed in this field, it has become evident that different subjects react to a diet elevated in omega-3 fatty acids in a different manner based on gender, body weight and blood lipid profiles. So far, no definite conclusion on the effect of omega-3 fatty acids on total cholesterol and KDL cholesterol on human subjects can be drawn from the data available. Researchers are presently turning to the understanding of the physiological effects of omega-3 fatty acids on blood cholesterol levels to elucidate why there is such a variable response of this blood parameter to fish oil treatments.

Résumé

Les effets des acides gras omega-3 sur les niveaux de cholestérol du sang ont étudiés avec plus de rigueur au cours des dix dernières années. L'étude classique de Dyeberg et Bang (1972) avait lancé des recherches subséquentes en vue d'examiner les régimes à haute teneur en concentrés de poisson ou huile de poisson. On a démontré que les populations esquimaudes consommant un régime à haute teneur en poisson marin affichaient des niveaux de cholestérol moyens et des concentrations de lipoprotéines haute densité (LHD) élevées malgré un pourcentage important de calories provenant du gras dans leur alimentation. Les recherches dans ce domaine ayant progressé, il est désormais évident que différents sujets réagissent différemment à un régime à haute teneur en acides gras omega-3, selon leur sexe, poids corporel et lipides sanguins. On ne peut présentement tirer aucune conclusion sur l'effet des acides gras omega-3 sur le cholestérol total et le cholestérol LHD chez les êtres humains. Les chercheurs étudient maintenant les effets physiologiques des acides gras omega-3 sur les niveaux de cholestérol du sang en vue de déterminer la réaction si veriée de ce paramètre sanguin face aux traitements à l'huile de poisson.

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Note: This paper is the first place award winner of the Elizabeth Feniak Award for Excellence in Writing. Undergraduate Writing Competition for 1989

Review of Literature

While linoleic acid, C18:2 (omega-6 family), is the predominant polyunsaturated fatty acid (PUFA) in the typical Western diet, linolenic acid, ClS 3 (omega-3 family), is a minor component. Because of the lack of ability of humans to synthesize these fatty acids, linoleic and linolenic acid can only be obtained in the diet (Leaf and Weber, 1988). Fat from fish is the major source of two important fatty acids of the omega-3 series; eicosapentaenoic acid (EPA), C20:5 omega-3 and docosahexaenoic acid (DHA), C22:6 omega-3. The content of these two fatty acids in fish may depend on many variables such as species, seasonal variations, and geographical factors (Stansby, 1969).

Linoleic acid upon elongation and desaturation, is transformed into arachidonic acid (AA) which is a precursor of eicosanoids (prostaglandins and leukotrienes) (Herold and Kinsella, 1986) This biotransformation is, however, inhibited in the presence of omega-3 PUFA (Sanders, 1985). AA is transformed into endoperoxides (intermediate metabolites of prostaglandins) via the cyclooxygenase and peroxidase components of prostaglandin synthetase (Herold and Kinsella, 1986). In the platelets, these endoperoxides are changed into thromboxane A_2 which is itself rapidly transformed into thromboxane B_2. Thromboxane A_2 has vasoconstrictive and platelet aggregating properties, while thromboxane B_2 is inactive. In the vascular endothelium, endoperoxides are transformed into prostaglandin I_2 (a platelet aggregation inhibitor and vasodilator), which is changed into 6-keto prostaglandin F_1 (a stable metabolite). It is the equilibrium between thromboxane A_2 and prostaglandin 1_2 which controls the blood clotting process. It has also been demonstrated that EPA can be metabolized to prostaglandin I_3. Prostaglandin I_3, has an inhibitory effect on the clotting process which is equivalent to that of

prostaglandin I_2. Thromboxane A_3 (which is also derived from EPA) is, however, less potent in promoting clotting than is thromboxane A_2 (derived from AA) It is hence the change in the relative activities of prostaglandins with respect to thromboxanes caused by EPA that inhibits the clotting process. In the case where the proportions of omega-3 fatty acid are increased in the diet, a competition for the cyclooxygenase biotransformation occurs between AA of the omega-6 series and EPA of the omega-3 series. Increased biotransformation of the omega-3 EPA due to an elevated content in the diet results in an altered synthesis of prostaglandin. The synthesis of prostaglandins as modified by EPA results in at least two major physiological responses: (1) a decrease in platelet aggregation and; (2) an increase in the bleeding time. Such a situation is generally thought of as being beneficial especially against cardiovascular disease (CU) (NIN review, 1988). For example, results from the epidemiological data collected by Dyeberg and Bang (1972) suggested that Eskimos with dietary habits which included large amounts of lipids from marine origin had significantly lower concentrations of total cholesterol and higher levels of the HDL cholesterol which is thought to be beneficial in preventing CVD. The incidence of CVD in these populations was practically nonexistent.

The effects of fresh fish and fish oil concentrates on total cholesterol and HDL cholesterol will be reviewed in this paper.

Methodological Approaches

Many aspects need to be considered before comparing different research designs. For instance, several studies have been designed as double blind. Some subjects can, however, often feel a fish aftertaste which may influence the results. In more recent work (Bruckner et al., 1987), researchers have added peppermint flavours to the fish oil concentrates in order to avoid a situation where the subject could recognize the dietary supplement. Another important consideration with double blind designs is that some cross-over studies do not include a "washout period" which could prevent the residual effects of a first treatment from affecting the next one (Bruckner et al., 1987). The choice of the placebo is another important factor. Safflower or olive oils are usually chosen; olive oil should, however, be preferentially used as a placebo since unlike safflower oil it is mainly composed of C18:1 omega-9, a fatty acid which has not been shown to modify the metabolism of prostaglandins (Bruckner et al., 1987). Another factor which should be considered in the comparison of blood lipid variations between different study designs is that some researchers describe solely the total intake of the fish oil rather than the total intake of omega-3 fatty acids. This may complicate interpretation since fish oil concentrates also contain fatty acids which are not of the omega-3 family. Another complicating factor is that overweight subjects do not respond to fish oil treatment in a similar fashion as subjects at ideal body weight (Bruckner et al., 1987). It is also believed that male subjects do not respond to fish oil treatment the same as female subjects although some studies use a mixture of males and females (Bruckner et al., 1987). Another limitation to most research designs is that fish oils are usually provided to each subject in the same quantity regardless of their body weight and their caloric intake instead of on a per kilogram basis. Finally, some study designs treat normolipidemic subjects while other studies treat hyperlipidemic subjects. The difference in clinical conditions may elicit a different response and so comparison of these two types of studies may not be accurate. These aspects of research designs were taken into consideration in the interpretation of results and their analysis.

HUMAN EXPERIMENTS

Studies using fresh fish

Studies using fresh fish have been conducted since the late 1950s. As in these early studies fish oil did not seem to exert a greater effect than vegetable oil as a cholesterol lowering agent, further research was not undertaken with fish oils (Harris et al., 1983). Thereafter, in the following three decades, research studies focused their attention towards the effects of vegetable oil on blood lipid parameters. The depressive effects of fish oils on blood cholesterol levels have recently been recognized once again (Phillipson et al., 1985). Many experiments using fresh fish as a source of omega-3 fatty acids to study their effect on blood cholesterol levels have been conducted between 1978 and 1988.

The use of fresh fish in study designs as a source of omega-3 fatty acids offers some disadvantages. For example, it is difficult to determine with precision the total intake in grams of EPA and DHA due to variations in fatty acid content of fish. The total intake of omega-3 fatty acids depends on the percentage of omega-3 PUFA in the fat of the fish which can vary with each species. A low compliance to a diet proposing high amounts of fish (200-400 grams daily) can be usually expected. In addition, studies which examine the effects of dietary fish intake often show a concurrent decrease in the intake of high cholesterol and saturated fat containing foods. The physiological effects observed may, therefore, not always be due to an increase in the intake of fatty acids of the omega-3 family.

Freshwater Fish

Atkinson et al. (1987) used a freshwater fish diet as a source of omega-3 fatty acids to look at the effect on blood cholesterol levels. As opposed to fish of marine origin, the content of C16 and C18 monoene acids is generally higher in the fat of freshwater fish while C20 and C22 monoene acids are usually found in lower proportions (Atkinson et al., 1987). The omega-3 to omega-6 fatty acid ratio is also lower in the fat of freshwater fish (Atkinson et al., 1987). The fish intake was increased in this study to enable the omega-3 fatty acid intake to be at levels similar to other studies using marine fish. Atkinson et al. (1987) found no significant changes in the blood lipid profile of subjects except for an increase in HDL cholesterol levels after two weeks. Four weeks after the freshwater fish diet was stopped, the HDL cholesterol levels went back to baseline values. The author concluded that some other component apart from omega-3 fatty acids had to be responsible for the cholesterol-lowering effects exerted by a marine fish diet. This study design, however, lacked a control group and dietary guidelines to be followed by the subjects to control for the percentage of energy from fat and the daily total cholesterol intake. Further research is required to verify these findings.

Marine Fish

Total cholesterol: A consistent finding in the late 1950s was that the replacement of saturated fats by omega-3 and omega-6 PUFA in the diet resulted in a lowering of blood cholesterol (Harris et al., 1983). More recent results, however, appear contradictory. Some studies using omega-3 fatty acids have shown only a small decrease in total serum

cholesterol (Bradlow et al., 1983; Harris et al., 1983; Singer et al., 1983), while other studies have shown no change or slight increases upon marine fish intake (Fehily et al., 1983; Thorngren et al., 1986; Von Lossonczy et al., 1978). Many variables such as the daily total cholesterol and daily saturated fat intake are difficult to control for and may influence the outcome of research studies.

HDL cholesterol: The most recent studies have found HDL cholesterol to remain near baseline values or to be slightly increased when a diet which included fish was implemented (Harris et al., 1983; Singer et al., 1983; Thorngren et al., 1986; Von Lossonczy et al., 1978). Bradlow et al. (1983), however, reported a decrease in HDL cholesterol following a high intake of fresh marine fish.

Studies using fish oil concentrates

Study designs using fish oil concentrates as a source of omega-3 PUFA offer the possibility to conduct single or double blind studies with a control group taking a placebo. The use of a concentrate of fish oil also allows the researcher to control more accurately the amount of omega-3 fatty acids given to each subject. In addition, other fish components are excluded from the diet when a concentrate of fish oil is used (Bronsgeest-Schoute et al., 1981). Another important consideration is that subjects do not necessarily have to like fish and to consume it two to three times a day for the duration of the study. Thus compliance to the diet during the study period could be expected to be higher. The use of such a source of omega-3 fatty acids would not, however, help towards a modification of eating patterns which may have led to the problem of hypercholesterolemia in the first place.

Healthy subjects

Six studies are reviewed in which healthy subjects were given different doses of omega-3 fatty acids.

Total cholesterol: Investigations regarding this blood parameter have lead to contradictory results. Five of the studies revi.ewed using healthy volunteers have shown no significant change in blood cholesterol after ingestion of different doses of fish oil concentrates (Bronsgeest-Schoute et al., 1981; Rogers et al., 1987, Sanders et al., 1981, 1983a, 1983b) Bruckner et al. (1987) have, however, observed an increase in total plasma cholesterol. He attributed this variation to an increase in the total cholesterol intake contributed by the fish oil. He estimated the contribution of cholesterol from the fish oil concentrate to be 6 mg/g as compared to 0 mg/g from the control placebo, olive oil. The research performed to this point has not been conclusive with regards to the effects of omega-3 fatty acids on total plasma cholesterol.

HDL cholesterol: Results for this blood lipid component are also ambiguous. Researchers expected to find an increase in the levels of HDL cholesterol after ingestion of EPA and DHA since Bang and Dyerberg (1972) found the plasma levels of HDL cholesterol to be elevated in Eskimo populations. Subsequent studies have been, however, inconsistent. For instance, some studies have shown no significant changes in this blood parameter (Bronsgeest-Schoute et al., 1981; Rogers et al., 1987) while others have observed an increase (Bruckner et al., 1987; Sanders et al., 1981, 1983a, 1983b) Bronsgeest-Schoute et al. (1981) have concluded that the effects of PUFA from the omega-3 family on HDL cholesterol are only occasional.

Hyperlipedemic Subjects. Three studies are reviewed in which hyperlipedemic subjects were given different doses of omega-3 fatty acids.

One study conducted by Demke et al (1988) investigated the effect of a fish oil concentrate on 31 hypercholesterolemic patients for 28 days. Thirteen subjects received five grams of concentrated fish oil daily while eighteen subjects were given a placebo containing safflower oil. A significant 14% increase in the total cholesterol from the baseline values was observed. The HDL cholesterol levels were significantly increased by 13%. Thirty days after the treatment with fish oil was ended, the 11 blood lipid profile returned close to initial values which indicated that the changes were most likely due to the fish oil treatment.

Saynor et al. (1984) studied the effect of a fish oil concentrate over a period of two years. Of the 107 volunteer subjects who participated in the study, 92 had an abnormal blood lipid profile prior to the study. In the hyperlipidemic subjects, a gradual decrease in total plasma cholesterol and a significant increase in HDL cholesterol was observed after 24 months on the diet.

Sullivan et al. (1986) studied the effect of a 15 g/day MaxEPA (fish oil concentrate) intake on 23 hypertriglyceridemic subjects for either 4 or 8 weeks. He observed no change in total serum cholesterol concentration.

Four studies are reviewed where subjects were classified into lipoprotein phenotypes according to the World Health Organization criteria. (Sanders et al., 1985)

Type IIa Simons et al. (1985) studied the effect of two doses of fish oil (6 and 16 grams per day) on nine subjects with Type IIa hyperlipidemia. The variation of total cholesterol was not significant (-7% to +15% change from initial values) following the fish oil treatment.

Type IIb Researchers have recently looked at the effects of omega-3 fatty acids on the blood lipid profile of volunteer subjects with this type of hyperlipedemia. Results obtained for the total cholesterol levels from these studies were equivocal. Simons et al. (1985) and Zucker et al. (1988) found no significant changes in this blood parameter while Phillipson et al. (1985) observed a significant 27% decrease.

Type IV Subjects who had a blood lipid profile associated with Type IV hyperlipidemia were studied by Sanders et al. (1985), Simons et al. (1985) and Zucker et al. (1988). After implementing a diet supplemented with fish oils for a period ranging from four weeks to three months, all three studies observed no significant changes in total plasma cholesterol.

Type V Simons et al. (1985) also studied the effects of fish oil concentrates on four subjects with Type V hyperlipoproteinemia. He observed a 34% decrease in total plasma cholesterol levels following a fish oil treatment for a period of three months.

Mechanisms of action of omega-3 fatty acids on plasma cholesterol

It has been observed that as the omega-6 fatty acid proportion increases in the diet, the rise in plasma cholesterol induced by dietary cholesterol is not as marked (Nestel et al., 1984). Research protocols have been designed, therefore, using human subjects, to determine if omega-3 fatty acids could also exert the same effect. A study conducted by Harris et al. (1984) observed a significant decrease in plasma cholesterol during a high-carbohydrate diet-containing fish oil. It was suggested that the effect of PUFA on blood cholesterol levels was either due to a decrease in the rate of cholesterol synthesis or to an increase in the rate of clearance of the lipoprotein carrying cholesterol in the blood (Goodnight et al., 1982). Illingworth et al. (1984) and Nestel et al. (1986) both investigated the nature of the

effect of omega-3 fatty acids on total plasma cholesterol. They observed a decrease in total plasma cholesterol and a lower apoprotein-B (lipoprotein) rate of synthesis after a dietary cholesterol intake containing fish oil. Nestel et al. (1986) concluded from his research that upon dietary cholesterol intake, fish oil concentrates can prevent a rise in apoprotein-B and low density lipoprotein cholesterol in the blood. Goodnight et al. (1982) have observed a decrease in the rate of apoprotein-B synthesis in normal subjects fed a high omega-3 PUFA diet when compared to subjects following a control diet containing saturated fats. An increase of sterol excretion via feces was also proposed as a mechanism of action of the omega-3 fatty acids on blood cholesterol by Goodnight et al. (1982). Normal subjects following a saturated fat control diet excreted 673 mg of sterol daily, while subjects ingesting a vegetable oil diet or a salmon oil diet excreted 926 mg and 975 mg of sterol daily respectively. The fatty acids from the omega-3 series could therefore decrease total blood cholesterol levels via these pathways. Further research is needed in this area to verify the validity of these findings.

Conclusion

Research in the area of CVD is very important since it is the number one killer in America. The contradictory results observed in the numerous experiments reviewed have so far made it difficult to even hypothesize why fish oil concentrates have an effect on total plasma cholesterol and HDL cholesterol only in certain circumstances. These circumstances have not been clearly defined to this moment. Researchers have so far noticed that the gender of the subject, the body weight, and the clinical condition of the patient can lead to different responses to fish oil treatment. Until these issues have been further clarified, the general population should be made aware that the consumption fresh fish has not been shown to have any detrimental effects on health. Consumption of fish oil concentrates in large doses in some instances, however, may lead to complications such as an increase in blood cholesterol levels. □

Bibliography

Atkinson. P.M., Wheeler, M.C., Mendelsohn, D., Pienaar, N., Chetty, N. *Effects of a 4-week freshwater fish (trout) diet on platelet aggregation, platelet fatty acids, serum lipids, and coagulation factors.* American Journal of Hematology. 1987: 24:143-149.

Bang, H.O., and Dyeberg, J. *Plasma lipids and lipoproteins in Greenlandic west coast Eskimos.* Acta Med Scan. 1972: 192:85-94.

Bradlow, B.A., Chetty, N., Van der Nesthuyzen, J., Mendelsohn, D., and Gibson, J.E. *The effects of a mixed fish diet on platelet function. fatty acids and serum lipids.* Thrombosis Research. 1983: 29:561-568.

Bronsgeest-Schoute, H.C., Van Gent, C.M., Luten, J.B., and Ruiter, A. *The effect of various intakes of w-3 fatty acids on the blood lipid composition in healthy human subjects.* American Journal of Clinical Nutrition. 1981: 34:1752-1757.

Bruckner, G., Webb, P., Greenwell, L., Chow, C., and Richardson, D. *Fish oil increases peripheral capillary blood cell velocity in humans.* Atherosclerosis. 1987: 66:237-245.

Demke, D.M., Peters, G.R., Linet, O.I., Metzler, C.M., and Klott, K.A. *Effects of a fish oil concentrate in patients with hypercholesterolemia.* Atherosclerosis. 1988: 70:73-80.

Fehily, A.M., Burr, M.L., Phillips, K.M., and Deadman, N.M. *The effect of fatty fish on plasma lipid and lipoprotein concentrations.* American Journal of Clinical Nutrition. 1983: 38:349-51.

Fish oils and health. National Institute of Nutrition. 1988: 3(4) Review no.7 (October) 1-4.

Goodnight, S.H., Harris, W.S., Connor, W.E., and Illingworth, D.R. *Polyunsaturated fatty acids, hyperlipidemia, and thrombosis.* Arteriosclerosis. 1982: 2(2) 87-113.

Harris, W.S., Connor, W.E., and McMurry, M.P. *The comparative reductions of the plasma lipids and lipoproteins by dietary polyunsaturated fats: Salmon oil versus vegetable oil.* Metabolism. 1983: 32(2) 179-184.

Herold, P.M., Kinsella, J.E. *Fish oil consumption and decreased risk of cardiovascular disease: a comparison of findings from animal and human feeding trials.* American Journal of Clinical Nutrition. 1986: 43:566-598.

Illingworth, D.R., Harris, W.S., and Connor, W.E. *Inhibition of low density lipoprotein synthesis by dietary omega-3 fatty acids in humans.* Arteriosclerosis. 1984: 4(3) 270-275.

Leaf, A., and Weber, P.C. *Cardiovascular effects of a n-3 fatty acids.* New England Journal of Medicine. 1988: 318(9) 549-547.

Nestel, P.J., Connor, W.E., Reardon, M.F., Connor, S. Wong, S., and Boston, R. *Suppression by diets rich in fish oil of very low density lipoprotein production in man.* Journal Clinical Investment. 1984: 74:82-89.

Nestel, P.J. *Fish oil attenuates the cholesterol induced rise in lipoprotein cholesterol.* American Journal Clinical Nutrition. 1986: 43:752-757.

Phillipson, B.E., et. al. *Reduction of plasma lipids, lipoproteins, and apoproteins by dietary fish oils in patients with hypertriglyceridemia.* New England Journal of Medicine. 1985: 312(19): 1210-1216.

Rogers, S., James, K.S., Butland, B.K., Etherington, M.D., O'Brien, J.R., and Jones, J.G. *Effects of a fish oil supplement on serum lipids, blood pressure, bleeding time, haemostatic and rheological variables.* Atherosclerosis. 1987: 63:137-143.

Sanders, T.A.B., Vicders, M., and Haines, A.P. *Effect on blood lipids and haemostasis of a supplement of cod-liver oil. rich in eicosapentaenoic and docosahexaenoic acids, in healthy young men.* Clinical Science. 1981: 61:317-324.

Sanders, T.A.B., Hochland, M.C. *A comparison of the influence on plasma lipids and platelet function of supplements of w3 and w6 polyunsaturated fatty acids.* British Journal of Nutrition. 1983a: 50:521-529.

Sanders, T.A.B., and Roshanai, F. *The influence of different types of w3 polyunsaturated fatty acids on blood lipids and platelet function in healthy volunteers.* Clinical Science. 1983b: 64:91-99.

Sanders, T.A.B., Sullivan, D.R., Reeve, J., and Thompson, G.R.*Trialyceride-lowering effect of marine polyunsaturates in patients with hypertriglyceridemia.* Arteriosclerosis. 1985: 5(5) 459-465.

Saynor, R., Verel, O., and Gillot, T. *The long-term effect of dietary supplementation with fish lipid concentrate on serum lipids, bleeding time. platelets, and angina.* Atherosclerosis. 1984: 50:3-10

Simons, L.A., Hickie, J.B.., and Balasubramaniam, S. *On the effects of dietary n-3 fatty acids (mexepa) on plasma lipids and lipoproteins in patients with hyperlipidemia.* Atherosclerosis 1985: 54:75-88.

Singer, P. et. al. *Lipid and blood pressure-lowerinq effect of mackerel diet in man.* Atherosclerosis. 1983: 49:99-108.

Stansby, M.E. *Nutritional properties of fish oils.* World Review of Nutrition and Diet. 1969: 11:46-105.

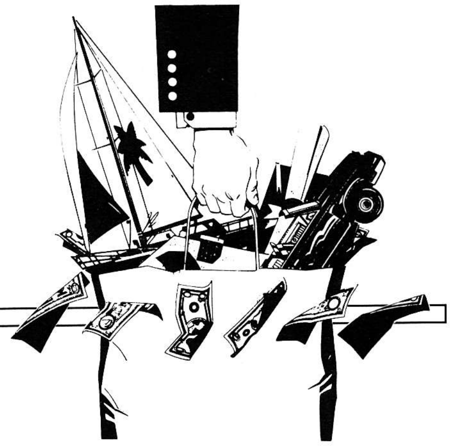
Sullivan, D.R., Sanders, T.A.B., Trayner, I.M., and Thompson, G.R. *Paradoxical elevation of LDL Apoprotein B levels in hypertriglyceridaemic patients and normal subjects ingesting fish oil.* Atherosclerosis. 1986: 61:129-134.

Thorngren, M., Nilsson, E., and Gustafson, A. *Plasma lipoproteins and fatty acid composition during a moderate eicosapentaenoic acid diet.* Acta Med Scan. 1986: 219:23-28.

Von Lossonczy, T.O., Ruiter, A., Bronsgeest-Schoute, H.C., Van Gent, C.M., and Hermus, R.J.J. *The effect of a fish diet on serum lipids in healthy human subjects.* American Journal of Clinical Nutrition. 1978: 31:1340-1346.

Zucker, M.L., Bilyeu, G.M., Harris, W.S., and Dujovne, C.A. *Effects of dietary fish oil on platelet function and plasma lipids in hyperlipoproteinemic and normal subjects.* Atherosclerosis. 1988: 73:13-22.

National Research Priorities in the Field of Consumer Studies



by *Jocelyne Neveu*

Abstract

Consumer and Corporate Affairs Canada is concerned with innovation, creativity, and the best, most efficient use of available resources. Created in 1967, it amalgamates a variety of laws to help consumers and industry alike. The Bureau of Consumer Affairs has four branches, namely, consumer Products Branch, Legal Metrology Branch, Product Safety Branch and the Consumer Policy and Services Branch, which enforce several laws.

Today's consumer uses information to make informed choices. Truth, fairness, and accuracy must prevail in the marketplace. Consumers, business, and government can best achieve these goals by working in partnership.

Consommation et corporations Canada contrôle l'innovation, la créativité et, au mieux, l'efficacité maximale des ressources disponibles. Créé en 1967, le ministère amalgame une variété de lois visant à venir en aide au consommateur et à l'industrie en général. Le Bureau de la consommation compote quatre divisions, la section produits de consommation, la portion métrologie légale, le secteur sécurité des produits et la division sur les politiques et services au consommateur, supervisant chacune l'application de plusieurs lois.

Le consommateur moderne utilise l'information pour guider ses choix. Vérité, justice et précision doivent dominer le marché et c'est en travaillant conjointement que les consommateurs, l'industrie et le gouvernement atteintdront ces buts.

Note: This paper was presented to The Canadian Association for Research in Home Economics in Quebec, May 1989.

The topics "Priorities in Research" provides a most welcomed opportunity to share some insight into the factors we, in the Bureau of Consumer Affairs, think influence today's consumers in the marketplace. Also, this occasion is ready made to help involve academics in the reflection underway at CCAC (Corporate and Consumer Affairs Canada) and elsewhere across government, concerning better ways of going about our business. Put simply, there is a clear and emerging need to bring new and creative solutions to problems. Old solutions do not work very well in today's marketplace. Consequently, our general priority is concerned with innovation, creativity, and best and most effective use of available resources. Some may be a bit sceptical, especially on hearing a federal public servant place so much importance on better results and more effectiveness. Be assured that CCAC is an enlightened government organization and that CCAC employees strive to do more with less, to be innovative, better managers, and to be more productive generally.

Our priorities in research relate primarily to what we are mandated to do for consumers as the Bureau of Consumer Affairs. Part and parcel of this is our view of the marketplace. Three entities form the marketplace. Consumers, business, and government. They are interdependent. Before discussing what may be on the horizon for consumers and the marketplace, a description of CCAC and the Bureau of Consumer Affairs would be appropriate. A look at the Department's priorities will clarify our functions and responsibilities. CCAC was created in 1967 to bring under one administrative umbrella, a variety of laws designed to help consumers and industry function effectively within the Canadian marketplace. Consumer and Corporate Affairs Canada's Bureau of Consumer Affairs is that portion of CCAC which most vigorously monitors the wellbeing of consumers.

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Bureau of Consumer Affairs

This bureau's mandate is to ensure a safe, orderly, and fair market for both traders and consumers. In consultation with other government departments and agencies, the private and voluntary sectors, it establishes and enforces regulations and administers a number of voluntary programs. The Bureau is divided in four branches responsible for the application of several legislation, all aimed at achieving our mission.

The Consumer Products Branch, identifies, controls, and prevents product misrepresentation in the marketplace, and makes sure that accurate information is available to help consumers in their choice of products.

The activities center around five principal acts:

1. Under the specifications of the Consumer Packaging and Labelling Act, the packaging of all consumer products must indicate in both

official languages what the product is, the net quantity, plus the name and addresses of the manufacturer, importer, or distributor. To impede the incidence of fraudulent or misleading claims, all other information appearing on packaging is subject to Departmental review.

2. According to the Textile Labelling Act, clothing for sale at the retail level must display a label indicating the fabric content as well as a number to indicate which company made or imported the garment.
3. The Food and Drug Act, which is shared with an other Federal Department, requires food product manufacturers to indicate on their product labels, a list of ingredients contained on the product. Drugs are the mandate of Health and Welfare Canada.
4. The Fur Garment Labelling Act is voluntary and endures the accuracy of the fur content appearing on the labels.
5. Precious metals including gold, silver, and platinum, are subject to quality standards under Precious Metal Marking Act. Each piece of gold sold with quality identification must also carry a registered trade mark engraved at the time of manufacture.

The Consumer Products Branch also shares responsibility with other federal and provincial departments for administering several laws concerning fish, eggs, dairy products, etc.

Over the past year, a voluntary nutrition labelling system has been developed in concert with Health and Welfare Canada. Inspectors' tasks are huge. During 1987-88, approximately 30,000 inspections were carried out by field staff at the manufacturing retail, import, and wholesale trade levels.

Legal Metrology Branch

The Legal Metrology Branch is another important division which regulates the measurement aspects of commercial trade as defined in the Weights and Measures Act and the Electricity and Gas inspection Act. Weights and Measures inspectors ensures adherence to established standards during the inspection of grocery scales, gas pumps, and other measuring devices for mass, volume, length, and time. Electricity and gas field staff are checking the accuracy of meters at utilities and manufacturers. Billing for these forms of energy is based upon the proper calibration of these meters.

Product Safety Branch

The Product Safety Branch develops and enforces regulations concerning the safety of consumer products and promote understanding of issues related to product safety. The Hazardous Product Act governs the sale, importation, and advertisement of products that are likely to affect safety of Canadian consumers. Potentially hazardous products are tested for characteristics such as chemical composition, flammability or mechanical defects. For example, household solvents must be labelled with symbols and warnings and packaged in child resistant containers. Plastic toys must be free of sharp points and edges and children's sleepwear have to meet more stringent flammability requirements. There is a growing concern to make safer products for elderly and the Branch has created a committee to study the needs of this population.

The last branch of the Consumer Bureau, is the Consumer Policy and Services. This branch seeks to promote and safeguard the interest of the Canadian consumer. Working with business, voluntary, and public sectors, it identifies and addresses issues that affect consumers across the country.

This task is accomplished through informal meetings, workshops, and encounters with working groups. The branch publishes periodic bulletins to initiate change in the marketplace, which often eliminate the need to enact legislation.

The branch administers the Tax Rebate Discounting Act which limits the fees of discounters. Finally, a grants and contributions program is available to help non profit consumer organizations to address issues arising in the marketplace.

Our department was created in 1967 and has gone through a great many changes since its beginning. So did consumers!

When we look back at the 1960s and 1970s, one gets a fairly clear picture of what consumers were like and are able to show how both consumers and the marketplace have changed. The role of information and its use by the consumer are particularly useful approaches to observing change during the last three decades. The most frequently read and most often cited document these days outlining the changes in consumers is a work by Marilyn E. Sandler, President of the Creative Research Group Limited. Presented at the Marketing Conference of the Conference Board of Canada on April 5, 1989, the paper talks of the 1960s consumers like this:

> "Consumers used material possessions to demonstrate how successful they were — big cars, mink coats, and well-stocked refrigerator—freezers, are examples. The brands they bought and the stores they patronized were also powerful symbols. Consumers played by the rules and stuck to a schedule, shopping white sales in January and back to school sales in September. The goal was to be just like everybody else, or maybe just a little bit better off. These traditional consumers used advertising as a kind of road map to correct decision-making, a guide to the correct brands, stores, styles, locations — the ones that were approved by society as appropriate or "the best". Information regarding quality, durability, and purity of ingredients acted as a kind of guarantee or reassurance."

The Sandler paper goes on to provide a fairly succinct, and we think insightful snap shot of consumers. By the middle of the 1960s, this approach to life gave way as several groups in the population began to question it, at first, women and college students. A different system of values and beliefs arose. Tom Wolfe coined the label, the "Me Generation" and this new value system focused on the individual rather than the group. Sandler identifies the consumer's insistence on the individual's absolute right to personal choice as a prominent theme of this new "Me Generation" who regarded the institutions of society, including business, as the enemy of the poor, defenceless consumer. Sandler notes that the "Me Generation" consumer actively resisted information, especially if it contained any hint of advice or direction. Information's main role, she goes on to say, was to signal the arrival of something new and special.

In the late 1970s, consumers realized that lifestyles were not quite as fulfilling as had originally been thought. Even though most of the

population had adopted at least some of what Sandler described as the flexibility of the "Me Generation Values", change came again. Consumers in the early 1980s recognized that their lifestyles depended on a very healthy economy and that resources of all kinds were becoming scarce. Between 1980 and 1985, Sandler suggests that consumers attempted to do something about the dissatisfaction and loneliness they were feeling. They concentrated on learning to manage their lives, become good decision makers, to be in control of time, money and effort.

The 1980s have been characterized by improved cooperation between consumers and business. Business has demonstrated an increasing responsiveness to consumer concerns and to the bottom line benefits of doing so. Consumers have responded by relying less on government for direct assistance in complaint handling and the provision of information and more on business from which it expects a useful response. In these conditions, governments have sought to streamline legislation to maximize the resources available for direct intervention to provide for safety, fairness, including information disclosure, and marketplace efficiency. Basic protection, previously established in law, has not undergone fundamental modification.

The consumers now in the marketplace use information in a different way. They use it to guide their decision making, to maximize benefits, and to reduce risk. Not only does today's consumer want information and want to use it, they want to receive well organized information. Today's consumer thinks it is the marketer of the product or service that must organize and present the information in a useful and usable form.

At CCAC, we agree with Sandler's insightful assessment of the changes consumers and, therefore, the marketplace have undergone. We recognize that change has occurred and will continue to shape new expectations and new roles in the marketplace.

The Way Ahead

Looking to the 1990s, it appears that the cooperation developed in the post-recession 1980s will continue. The changing marketplace will, however, present new challenges and difficulties for consumers. Products and services and their marketing approaches available to consumers will surge in numbers complimented by availability with both new and more widely dispersed technology and increasing business internationalism. This trend will continue and accelerate. Consumer purchase decisions will be more reliant on more instructive packaging information and truthful advertising. Business will rely on information disclosure as the focal point of sale with standards of composition playing a less important role. Given this, consumers could face new and hidden risks associated with imperfect information, safety and fairness, as traditional and/or local aspects of consumer protection, such as redress, are unable to address new problems. The consumer of the 1990s will want the overall package of "Consumer Policy" to reflect the new reality the consumer has brought to the marketplace.

"The 1980s have been characterized by improved cooperation between consumers and business."

In the 1990s, we suggest that Canadians will expect the traditional concepts of safety, fairness, and efficiency to remain as the basic planks of what is generally perceived to be consumer policy. However, we suggest that the foundation of consumer policy must point to a responsible sharing of the resources available to government, business, and consumers in our marketplace. The support and balance of these basic and fundamental values will be the focus of much attention.

Consumers are already influencing the new marketplace of the 1990s. Different attitudes, values, and expectations exist. Four main concepts are seen to encompass this change in consumers.

Simplification reflects an interest in conciseness, directness, and in convenience, the known versus the new, and the elimination of non-essentials.

Self-control in an acceptance of being able to have anything, but not everything, and a willingness to experiment within familiar territory.

Substance is the desire for "real stuff" and a move away from fads and frills.

Risk Management implies an acceptance of existing but recognizes that individual consumers are responsible for minimizing exposure and penalties.

If business people today find consumers more discerning and difficult than only a few years ago, they will be truly surprised at the consumers of the 1990s. In general, consumers will demand increased competence from the marketplace. Competence, not only from business and government but from themselves and others as well. People will be intolerent of poor performance. Make the best hamburger and people will buy it. Disappoint them once and they will not be back, ever. The individual, it seems, will be relied upon to make the marketplace work to the benefit of all.

There will, of course, be an effect on business. Business will be driven by the need to be internationally competitive and this will increasingly be tied to the production of goods and service in Canada. To sell abroad successfully, Canadian business will need to be successful at home. This means satisfying the high standards of the increasingly difficult Canadian consumer. To sell on world markets our goods and services must be competitive in price, in quality and safety, and match consumer preferences. Inefficiencies linked to both the production and the consumption of goods and services, for example, problems of safety, quality and fairness in the domestic market, and in the face of imported goods, as well as the costs associated with government legislation, could hinder Canada's ability to be internationally competitive. In this sense, Canadian consumers will play a most vital role in causing business to respond to demands for better quality products and services. This in turn will help Canada be competitive internationally.

Inevitably, the process of change outlined must have a more fundamental impact on the relationship among consumers, business, and government. Our respective roles and responsibilities vis-a-vis each other are bound to undergo change. With this in mind, it is reasonable to suggest that:

- Consumers must assume responsibility and accountability for developing and using all the personal

skills necessary to understand, function and cope with the purchase and use of goods and services.

This means demanding accuracy, usefulness, and convenience in information and products and services. Among this proliferation of choices, consumers have a responsibility to make careful choices. Demanding substance over frills will be the norm. They will demand quality and performance to minimize inherent risks. Moreover, consumers will need to understand the risk of important purchases. They will have a responsibility.

- Business must be responsible and accountable for ensuring that safety and fairness including redress become integral parts to the production and sale of goods and services.

Business must design faults and hazards out of products and services and must provide practical and useful information to guide consumers in their purchase decisions and the use and maintenance of products and services. It is "good business" to be ready and able to resolve problems that arise with goods and services. Consumers will only give business one chance to perform.

Government must promote safety, fairness, and efficiency in the production and consumption of goods and services as well as ensure compliance with evolving standards and regulations. It must also facilitate changes in consumer and business practices aimed at the sharing of responsibilities.

Government is constantly seeking to maximize the impact of its resources. Whereas in the 1960s and 1970s everyone presumed that government would act almost exclusively through legislation and regulation, this no longer holds for the 1990s. A broader range of options will be used to deal with Canadian marketplace problems in a global context. Government is expected to use a full range of instruments. Besides being unimaginative, continually asking government for legislation and regulations to address problems, may not be effective in the 1990s.

Traditionally, academics have been stalwart contributors to consumer affairs around the world. At CCAC, we of course try to stay abreast of their published works. The American Council on Consumer Interests (ACCI) annual conference is a virtual gold mine of information, analysis, and insight. Since our focus in on the marketplace and the consumer in the marketplace, we readily acknowledge that the paper published in the ACCI's proceedings have an influence not so much on what we do, but on how we do it, and on determining if we shall continue to do it. It was with considerable interest that we read in the Journal of Consumer Affairs, Winter of 1988, Volume 22, Number 2, Stephen Brobeck's paper based on this presentation to the ACCI's 1988 Annual Meeting. The title of his presentastion, was *Academics and Advocates: The Role of Consumer Researchers in Public Policy-Making.*

Mr. Brobeck is the Executive Director of the Consumer Federation of America and in reviewing the current relationship between academics and advocates made the following observation:

> "While the relationship between academics and advocates is a good one, it is not as close as it might be . . . your research is theoretical, directed toward using mathematical models to understand consumer behaviour, rather than employing simpler methods to evaluate the complex relationship of current and proposed public policies to the consumer interest."

Brobeck goes on to point out the great need to evaluate both those marketplace imperfections alleged to harm consumers and those public interventions intended to correct such imperfections. He maintains that because of their training and disinterest, consumer researchers are well-suited to examine critical public policy issues — particularly the consumer impact of both market imperfections and the public interest. Also, and perhaps because he tends to be pragmatic, Brobeck suggests that a second reason that consumer researchers should involve themselves more in public policy-making is that there is ample opportunity to do so. The Canadian experience is not very different.

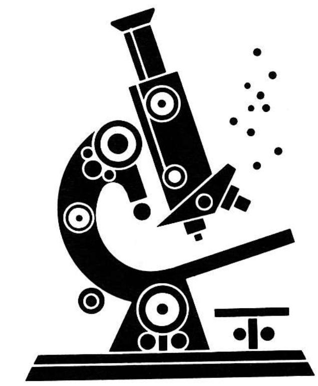
The other side of the disclosure coin is the issue of the privacy of personal information. Technology has made it possible for increasing quantities of information to be collected, shaped, and transmitted for uses other than those the information was collected for. How to protect, the degree of protection, and where lies the responsibility to protect the privacy of information needs to be looked into.

In terms of special populations within the larger category referred to as consumers, we have two major subgroups: children and youth, and the older Canadian consumer. It will be much more difficult for these two subgroups to function as consumers in the 1990s given the rapid change present in the marketplace. We have all heard of future shock and the third wave by Alvin Toffler. What information, quality and quantity of information, perhaps education is needed for children to know how to plan, and for the elderly to cope with the present. Are these the right questions we should be asking?

Finally, the third area of interest for the Bureau is the many changes underway in Europe as 1992 approaches. The one European market is bringing considerable change to how consumers relate to products, how they view distribution and purchase issues, and the safety of products. One representative of a consumer organization located in Britain suggested recently that while consumer organizations win battles at the national level, they regularly lose at the European community level. How are Europeans overcoming these difficulties, what factors motivate or cause them to adopt a particular strategy and how do these changes relate to the consumer interest.

As you will have already concluded, there are many changes underway in consumer affairs and our priorities relate to change and the consumer interest and new ways of going about our business.

Qualitative Textile Fiber Identification: An Exploratory Study



Janet M. Menec, MSc

Abstract

Traditional techniques of textile fiber identification require trained technicians in laboratory environments. The purpose of this preliminary study was to find an alternative approach; a simple and quick scheme of qualitative analysis that could be implemented by people with a minimum of training and without special laboratory facilities. The resulting scheme of analysis requires the use of a transmission light microscope fitted with a polarization filter so as to permit observation of fiber morphological characteristics in conjunction with fiber central illumination and Becke line movement.

Résumé

Les techniques traditionnelles d'identification de fibres de textile exigent la présence de techniciens professionnels oeuvrant en laboratoire. Le but de cette étude préliminaire était de trouver une autre approche; un schéma simple d'analyse qualitative simple et rapide pouvant être implanté par du personnel possédant un minimum de formation et ne disposant pas de laboratoires spéciaux. Le schéma d'analyse en résultant implique l'usage d'un microscope optique à transmission muni d'un filtre de polarisation permettant ainsi l'observation des caractéristiques morphologiques des fibres en conjonction avec l'illumination centrale de ces dernières et du mouvement linéaire Becke.

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The Textile Labelling Act requires that certain consumer textile articles available for sale in Canada carry a label disclosing the dealer identity and percentage fiber content by generic name. As part of their inspection program, consumer products inspectors working with Consumer and Corporate Affairs Canada check the appropriateness of label information according to the Textile Labelling Act. Suspected violations are purchased and sent to a textile laboratory for qualitative and quantitative analysis. Inspectors need a means to select products for official analysis. It was hoped that a relatively quick, inexpensive, and simple method of qualitative fiber identification would facilitate this selection. Rather than permit identification of unknown fibers, it was decided that such a method would enable inspectors to confirm or not confirm the presence of certain fibers as indicated on the disclosure label. If a qualitative fiber content could not be confirmed, then the sample would be subjected to laboratory analysis.

Requirements of the Method

Inspectors examine consumer textile products at a variety of locations not equipped with laboratory facilities, namely customs, manufacturing firms, and retail outlets. They require a method that can be implemented quickly in any of these locations; equipment and supplies need to be kept to a minimum and be easily transported. Additionally, since the procedure is not performed in a laboratory, it must be safe to use; the use of hazardous chemicals and/or an open flame is not possible. Only small specimens of fiber should be necessary for analysis so as not to alter the physical appearance of the article. Lastly, the method should be simple to learn and relatively inexpensive. This combination of demanding requirements led to the development of an exploratory study investigating qualitative fiber identification (Menec, 1983).

Literature Review

With the exception of sophisticated procedures such as infrared spectrophotometry, gas chromatography, or thermal analysis, the task of fiber identification does not rely on the observation or measurement of a specific characteristic of the fiber(s) in question. Rather, information needs to be gathered from a series of tests which help to establish a profile of characteristics from which conclusions may be drawn regarding fiber identity (Lyle, 1977; Taylor, 1981; Textile Institute, 1985). Fiber identification is further complicated by the fact that, more often than not, fibers are used in combination with other generic fiber types to create blended constructions. When these blends are encountered, the behaviour of one fiber may mask or interfere with the behaviour of other fiber(s) in the mixture. Results from simple tests such as burning are confounding (Lyle, 1977). Furthermore, finishes applied to fabrics may alter fiber behaviour in some identification tests.

Traditional approaches to simple fiber identification rely on a combination of burning behaviour, staining reactivity, chemical solubility, melting point determination, density measurements, and/or microscopic observation. With the exception of microscopic ob-

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servation, these procedures do not meet the requirements previously identified. Additionally, tests such as burning behaviour and staining reactivity give limited information. Results from these tests place fibers only in a general category (eg. natural cellulosic, proteinic, synthetic, etc.) rather than a specific generic family.

Microscopic observation of longitudinal and cross sectional appearances is helpful in confirming the identity of natural fibers but it provides inconclusive information for man-made fibers since many of their characteristics may be controlled and varied according to end use requirements. Cross sectional shape, longitudinal appearance, fiber diameter, and delusterant level are not unique to any one man-made fiber. However, there are features of fibers other than physical characteristics that are associated with a particular generic fiber type and that may be measured with the microscope.

Refractive Index Comparison

When textile fibers are viewed with the microscope, they are mounted in a liquid medium in order to provide the necessary contrast for examination of the fiber structure. The selection of a suitable mounting medium depends on the refractive index of the fiber (Textile Institute, 1985). Textile fibers have two values of refractive index; one value (n II) is determined when light vibrates parallel with the long axis of the fiber while the second value (n I) is determined when light vibrates perpendicular to the fiber (Heyn, 1952). These values of refractive index are measurable and are considered to be useful criteria in fiber identification (Heyn, 1952; Textile Institute, 1985). In many instances, the two refractive indices are very close. However, when a large difference exists between the two values, it is usual that the mounting medium be selected according to the first value (Textile Institute, 1985).

The image of a particular fiber in the microscope varies when fibers are mounted successively in a selection of media having a range of refractive indices. For example, when a pale or colourless textile fiber is mounted in a medium having the same refractive index, the fiber boundaries "optically" dissolve and the fiber will not be visible. This is true for acetate fibers mounted in glycerine; glycerine is a commonly used medium in fiber microscopy. When the fibers are mounted in a medium of different refractive index, they will be visible. Usually, the medium is selected so as to have a refractive index lower than that of the fiber.

In addition to the image of the fiber, brilliant lines or a halo of light known as Becke lines surround the fiber. It is believed that the presence of the Becke lines is due to the total reflection of light at the boundary of the denser substance, whether the denser substance is the fiber or the mounting medium (Keyn, 1953). These Becke lines are most easily viewed when light reaching the fibers vibrates in one direction only. This may be achieved with plane polarized light. A polarizing disc may be inserted beneath the condenser on the microscope.

The Becke lines are an interesting phenomenon. They will not appear when the fibers are mounted in a medium of equal refractive index as in the case of undyed acetate fibers in glycerine. Heyn (1952) presented this as a useful means to identify unknown synthetic fibers. Fibers can be mounted successively in a series of liquids of known refractive index until the fiber boundaries optically dissolve. At this point, the fiber refractive index is the same as the mounting medium (Heyn, 1952). However, this technique requires a large variety of costly, accurately calibrated liquids varying only slightly in refractive index and demands considerable concentration on the part of the observer (Heyn, 1953).

When the Becke lines do appear, changing the focus of the microscope causes them to move. More specifically, when the focus of the microscope is lowered (ie. the stage is raised) the Becke lines move toward the substance having the lower refractive index, be it the fiber or the mounting medium.

In addition to the appearance of the Becke lines, since textile fibers are roughly cylindrical, they tend to behave as a biconvex lens and focus light at some distance above or below the fiber (Heyn, 1953). This means that when the focus of the microscope is lowered, a bright band of light will appear in the same vertical pane as the fiber for those fibers having a refractive index lower than that of the mounting medium. The presence of the bright band of light appears in tandem with the Becke lines. Conversely, when the focus is raised, the bright band will appear if the fiber's refractive index is higher than the mounting medium. Heyn (1953) discussed this method of central illumination as being useful for fiber identification. It is included in the AATCC Technical Manual — Method 20-1985 along with the more demanding Becke line procedure as a technique for the qualitative identification of fibers. While included in the AATCC Technical Manual, it is not a method generally used by laboratory personnel; other methods are more efficient given the facilities.

Proposed Method of Fiber Identification

The Becke line technique, though tedious, warranted further investigation in conjunction with the method of central illumination in the search for simple confirmation of fiber identity. Further exploration of the literature and experimentation with these two techniques led to the development of a scheme of analysis that included:

a. mechanical separation and visual examination,
b. microscopic observation of longitudinal characteristics, and finally,
c. refractive index comparsion utilizing a combination of the method of central illumination and Becke line effect.

Steps a. and b. are routinely done in qualitative fiber identification. They are useful for fiber confirmation for natural fibers. The refractive index comparison provides additional information particularly for man-made fibers.

A series of six immersion liquids (A - F) displaying a range of refractive index from 1.472 - 1.658 was used for the refractive index comparison. This range corresponded to the range of refractive indices of those fibers most commonly encountered in consumer textile articles. Liquid paraffin and monobromonaphthalene having refractive indices of 1.472 and 1.658 (at 20°C) respectively were selected. These immersion liquids are relatively

safe to use and transport. They served as the two extremes of the series. Additionally, four different mixtures of these liquids were prepared to give intermediate refractive indices of 1.49, 1.52, 1.54, and 1.57. These mixtures were prepared according to the formula:

$$n = \frac{n_1 v_1 + n_2 v_2}{v_1 + v_2}$$

where n, n_1, n_2 are the refractive indices of the mixture and components respectively and v_1, v_2 represent the volumes of the components (Butler, 1933; Stoves, 1957). The refractive index of each liquid was measured at 20°C using a refractometer. All of the liquids were kept in dark stoppered bottles (Textile Institute, 1985). These intermediate values were chosen in order to separate out various man-made fibers that are indistinguishable by ordinary microscopic observation. Reference values of refractive index for man-made fibers were obtained from the literature (AATCC, 1989; Textile Institute, 1985). Table 1 shows refractive index values (n II) of commonly encountered fibers in addition to the refractive indices of the six immersion liquids previously described. This table suggests that, for example, when acrylic fibers are firstly mounted in Liquid B, lowering of the focus causes the Becke lines to move toward Liquid B and no central illumination occurs. However, if the acrylic fibers are then mounted in Liquid C, lowering of the focus causes the Becke lines to move to the interior of the fibers and fuse with the central band of bright light.

It is important that the immersion liquids be used at temperatures of 20°C as their refractive index may change with temperature change. Slides of textile fibers are prepared using an immersion liquid lower than that of the fiber. As much as possible, the fibers are arranged on the slide in a six o'clock orientation. This facilitates observation of n II with plane polarized light. The microscope is fitted with a polarizing disc and it is oriented in a six o'clock position also. After having observed the fiber longitudinal appearance, the focus of the microscope is lowered by raising the stage; presence of central illumination and movement of Becke lines are noted. Then, a second slide of the fibers is prepared using the immersion liquid of higher refractive index. Central illumination and the movement of Becke lines are once again noted. (This procedure must be repeated for fibers extracted from the opposite fabric direction so as not to miss a different generic fiber type present in the fabric. Some knowledge of fabric constructions is helpful in selecting fibers from appropriate fabric locations.) In this way, confirmation of fiber identity may be made; the refractive index of a fiber can be compared with known values as indicated in Table 1.

When fiber mixtures are encountered, careful observation of longitudinal appearances may suggest different generic fibers. This would be quite apparent for fiber mixtures of natural fibers or mixtures of natural and man-made fibers. With man-made fiber blends, subtle differences in fiber diameter and/or delusterant level may suggest different fiber types; these may be noted before refractive index comparisons are made using appropriate immersion liquids for each fiber type.

This scheme of analysis is currently being used by consumer products inspectors as a screening device for selection of samples for official analysis. Certainly, when first introduced, it necessitated some training in the basic operation of a microscope and interpretation of images. Although it cannot be used on articles where no seams are exposed making the extraction of fiber samples impossible, it has proven to be a method that is easily and quickly performed away from a laboratory environment. Additionally, it is non-destructive; fiber samples can be unobtrusively extracted from hem or seam allowances on most garments.

However, it is recognized that this method of refractive comparison needs further refinement if it is going to be a useful tool for fiber identification rather than just confirmation of fiber identity. Specifically, additional mixtures of liquid paraffin and monobromonaphthalene are required so as to provide a more comprehensive range of refractive indices. The reliability of the technique at varying temperatures and relative humidities needs investigation. It is also hoped that the effect on fiber refractive index of certain finishes such as coatings be studied. Although all fibers of known refractive index tested to date with this technique have given consistent results, it is desirable to measure the refractive indices of all tradename variants of textile fibers so as to ensure the appropriateness of the immersion liquids selected for the procedure.

While this exploratory study addressed the need for fiber identification as required by consumer products inspectors, it is anticipated that this technique of refractive index comparison may find use in a variety of applications where fiber content of textiles requires confirmation, namely, in manufacturing, military, or geotextile fields. Additionally, it may provide

Table 1. Refractive Indices of Immersion Liquids and Selected Fibers

Immersion Liquid	Refractive Index*	Fiber Refractive Index* (n‖)+
		Triacetate 1.469
A (liquid paraffin)	1.472	
		Acetate 1.476
B	1.49	
		Acrylic 1.511
C	1.52	
		Modacrylic 1.535
D	1.54	
		Viscose rayon 1.542
		Wool 1.557
E	1.57	
		Cotton 1.577
		Flax 1.58-1.60
		Silk 1.59
		Nylon 1.575-1.578
		Kodel^R polyester 1.63
F monobromonaphthalene	1.658	
		Polyester 1.71-1.73

*refractive indices determined at 20°C.
+as reported by Textile Institute, 1985; AATCC, 1989.

an added dimension to textile science students' understanding of the microscopic properties of fibers. □

References

Butler, R.D. (1933). *Immersion liquids of intermediate refraction* (1.45-1.630) The American Mineralogist, 18(9), 386-401.

Heyn, A.N.J. (1952). *Observations of the birefringence and refractive index of synthetic fibers with special reference to their identification.* Textile Research Journal, 22(8), 513-522.

Hey, A.N.J. (1953). *The identification of synthetic fibers by their refractive indices and birefringence.* Textile Research Journal, 23(4), 246-251.

Identification of textile materials. (1985) , (7th ed., reprinted with corrections), Manchester: The Textile Institute.

Lyle, D.S. (1977). *Performance of textiles.* New York: John Wiley and Sons.

Menec, J. (1983). *Textile fibre identification — a manual.* Unpublished report prepared for Consumer and Corporate Affairs Canada.

Stoves, J.L. (1957). *Fibre microscopy.* London: National Trade Press Limited.

Taylor, M.A. (1981). *Technology of textile properties.* (2nd ed.). London: Forbes Publications Ltd.

Technical manual of the American association of textile chemists and colorists. (1989). North Carolina: American Association of Textile Chemists and Colorists (AATCC).

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Family, Environment, and Value Questions in Today's World

Lila E. Engberg

Abstract

This general article discusses how the values of the larger society are reflected in lifestyles of families and individual decisions. The cause and effect connection of dominant value systems, economy, polity etc., are questioned as being appropriate and relevant to an environmentally healthy symbiosis between man and the ecosystem.

Résumé

Cet article général examine comment les valeurs d'une plus grande société se reflètent dans les modes de vie des familles et dans les décisions individuelles. On questionne la relation de cause à effet des systèmes de valeurs dominants, de l'économie, de la politique, etc, en vue de déterminer s'ils favorisent une synbiose environnementalement saine entre l'homme et l'écosystème.

"People cannot live in nature without changing it" says Wendell Berry (1987:7). Humans are a part of the natural world, interdependent with nature, not separate from it. But, our North American value-orientations are mastery over nature, having rather than being; individualistic solutions rather than cooperation, (Nelson, 1980:103-105). These societal values are insidious and so taken for granted that we are unaware of them and the consequences. They are embodied in our socio-political system and dominant view of economic development. Industrial expansion, growth, new technology, competition, economic efficiency, are the preferences we hear about. They represent the values which Third World countries are expected to follow in order to be "progressive", like us!

Individual and family values usually follow the dominant cultural values of a society. North Americans are surrounded by concrete messages about what to consume in order to have "a better life". Few of us challenge the mastery-over-nature view and the accelerated destruction of nature which perpetuates our consumer oriented life-style. Family therapy, consumer behaviour, and marketing are the programs of the day, not home economics or family as change agent. Human values such as cooperation and conservation are not transmitted clearly to younger generations by their families. Among the consequences are deteriorating communities and natural environments.

According to the Bruntland report, life-threatening environmental concerns have surfaced both in industrialized and in developing countries (WCED, 1987:5). We hear about deforestation, flooding of lowlands, factory pollution of lakes and streams, dryland and soil degradation, acid percipitation and nuclear fall-out, pollution of the atmosphere, and poverty without making connections. Migration to rapidly growing cities is creating alarming housing, transport, sanitation, and employment problems. Changes in rural and urban environments and in the global ecology are inter-related and not well understood.

In our profession of home economics, we have two alternatives. We may accept the dominant values of our culture and continue to tinker with problems of food, clothing, shelter and human relations experienced by families *or* we may question societal values and work for fundamental social change. The latter is the larger challenge. It requires value changes and structural transformation.

Value Changes

Values are the things we believe to be right, good, desirable, or best. They indicate what has genuine worth in life and serve as strong motivational forces that give each of us direction. But it Is important to ask *"best for whom?"*. Individual, institutional, societal, and cultural values operate at different levels (Arcus, 1985). Individualistic tendencies have shaped our thinking and are not necessarily socially beneficial. Arcus (1985:183) challenges the home economics profession by stating: "While it is important that we contribute to the description and monitoring of social change, the most critical tasks would seem to be *helping to shape social change* for the *benefit of society* as a whole and helping to provide the education and socialization needed so that individuals and families make *critical human choices more effectively*".

Society as a whole, includes all people, throughout the world. The people of Africa, Asia, Latin America, and Northern Canada are a part of our world and our concern. If the forests of Brazil are cut down in order to expand livestock production, the people of Toronto may have cheaper meat, the Brazil government may pay off some of

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its debts, but the climate and ecology of the whole world may be threatened. Similarly, cutting the forests in Canada may provide *temporary jobs* in the lumber industry but destroy a whole ecology and life-style. Do we need more meat at a lower price? Do we need the paper products, the plastic wrap, and one more variety of salad dressing? Do we really need to own a carpeted, four-bedroom house and two cars? What do families and communities really *value*?

Value clarification and value change are difficult. It involves becoming more aware of ideas and things that we ourselves and our society prizes, noting dominant directions, inconsistencies, and consequences. It also involves thinking reflectively about global connections, issues of equity, justice and group action. Values are learned in the context of the family, community, and larger environment, but the larger socio-cultural environment is the most powerful. If change is to be expected, families and local communities will need to take *more control* over their own lives, and become *more aware* of local and global impacts of macro-policies and personal life-style choices. They will need to join and support organizations with humane objectives. Organized social movements bring change, not individuals acting alone.

Structural Transformation

Social structure refers to the arrangement and composition of the inter-related parts of our socio-cultural environment. Political, economic, and legal structures are a part of the "whole" system. They are not permanently fixed but are fairly well established and stable in many Western countries. Witness the recent elections in Canada and United States as reflections of systems which favour *large scale expansion* of *industries*, economic growth and the trading patterns now in place. The agriculture industry, the food industry, the medical industry, the arms industry, and so on, are structured in ways which are difficult to dismantle. Political power blocks and trading blocks keep the structure of the international system and all of us "in place".

Structures are somewhat invisible. At provincial levels, the structure of the educational system, for example, favours specialization and private ambitions. Berry (1987:77-81) suggests that the university system today is a maker of parts of things, "enforced by commercial compulsion to satisfy the customer" rather than to help student judgement and critical analysis.

A system based on human values and long-term global survival rather than exploitation requires structural transformation. The new system would acknowledge and get along with nature and allow small-scale communities to survive. Today, family and community values are assumed but are difficult to create and sustain. Structures within families can be exploitative. People with power frequently gain access to resources for their own benefit rather than for the whole family and its members.

Professional Responsibility

So what are we to do, in the field of home economics? We live in a world of complex inter-relationships. Often we feel powerless when we need to take action on several levels. At the level of the family and community we can help develop ecological awareness. According to Nelson (1980:254-256) ecological awareness means understanding how family behaviour is linked to the natural, technological, and socio-cultural environments, accepting the limits to our mastery-over-nature orientation and the need for change. Recognition that family perceptions, values and interaction patterns can change is a beginning step. Families are receiving mixed messages. On the one hand they are pushed to think that high levels of consumption is the way to economic prosperity and life satisfaction, and on the other hand they are encouraged to re-cycle and conserve. Women are encouraged to enter the paid labour force in order to gain status and a cash income but men are not encouraged to participate in home and community work. Unpaid family labour and the work of community volunteers remains low-status and invisible, but necessary for family solidarity and feelings of community. Again, note Berry's reference to the national economy's destruction of community and the principle of local selfsufficiency (1987:186). Home economists who conceptualize their role as transforming actors have the potential to draw attention to some of these dilemnas, to become more critical, better informed, and more political. (Vaines, 1985).

Social welfare programs, for example, take the power away from families and help create dependencies on external systems. The alternative is to allow individuals and families throughout the world to participatc more fully in their own development. That means learning to recognize and support locally based indigenous knowledge systems and local solutions. The products of industry are not necessarily the best solution for small-scale-farm households of the Third World nor for our own.

Family practices and environmental conditions need to be studied in relation to each other within a given locality, and with the full participation of the families concerned. In this way, socially beneficial values can be encouraged, strategies for change developed and acted upon at grass-roots levels. People who are left out of the centralized or mainstream socio-economic system lose their confidence and their participation skills. They need help in goal setting, decision-making, and resource managment, and in forming links which will help their development.

Social action and education at community level are necessary but not sufficient. Members of the home economics profession need to become more reflective about their professional practice. According to Vaines (1985:70) they can "... give better assistance to people in clarifying their needs and wants as global citizens in socially responsible ways". Those who form links with environmentalists and other development oriented professions can increase their understanding of relationships, and contribute a family ecosystem perspective. Joint action directed towards policy makers in government and industry has more power than that of a scattered few who care about "our common future". ☐

Bibliography

Arcus, Margaret (1985) "Transforming Values; A Challenge for Home Economists" *Canadian Home Economics Journal*. 35(4), 182-83.

Berry, Wendell (1987) *Home Economics*. San Francisco, North Point Press.

Melson, Gail F. (1980) *Family and Environment: An Ecosystem Perspective*. Minneapolis, Burgess Publishing Co.

Vaines, Eleanore L.(198S) "Transforming Actor: the Role of the Home Economist". *Canadian Journal of Home Economics*. 35(2), 69-71.

WCED (1987) *Our Common Future*. The World Commission on Environment and Development. New York, Oxford University Press.

Refugee Adaptation: The Case of Southeast Asian Youth in a Western Canadian City

Nancy Higgitt Copeland and Carol D.H. Harvey

Abstract

In this study of adaptation to Canada, a questionnaire was administered to 45 young people in a recreation centre for Southeast Asians. Respondents were primarily from Vietnam, with a mean age of 17.7 years. After three to five years in Canada, most respondents experienced some ongoing language barriers, low socio-economic status, and friendship patterns which favored their own ethnic group. Specific adaptations included learning English, becoming familiar with the environment, and finding friends. Some difficulties were encountered with loneliness. Younger respondents tended to score higher than older ones on variables suggestive of adaptation. Directions for further research are highlighted and implications for practicing home economists are discussed.

Résumé

Dans le cadre de cette étude sur l'adaptation au Canada, on a remis un questionnaire à 45 jeunes fréquentant un centre récréatif pour Asiatiques du Sud-Est. Les répondants provenaient surtout du Vietnam et l'âge moyen était de 17,7 ans. Après 3-5 années au Canada, la plupart des répondants connaissaient toujours des problèmes au niveau de la langue, du statut socio-économique bas et des relations amicales qui favorisaient leur propre groupe ethnique. Parmi les secteurs d'adaptation spécifiques on note l'apprentissage de l'anglais, la familiarisation avec l'environnement et la découverte d'amis. La solitude figurait parmi les difficultés rencontrées. Les participants plus jeunes ont généralement enregistré des pointages supérieurs à ceux de leurs aînés en ce qui a trait aux variables suggestives d'adaptation. L'article suggère des orientations pour la recherche ultérieure ainsi que les implications visant les professionnels en économie familiale.

Although considerable literature exists regarding the adaptation of adult refugees, particularly males, there exists little material specifically related to younger refugees (Charron & Ness, 1981; Ellis, 1980; Huyck & Fields, 1981). The potential vulnerability of young refugees to the combination of developmental and adaptational demands suggests a need for research in this area.

The purpose of this study was to explore the process of adaptation by young Southeast Asian refugees. The objectives were: to determine perceptions held by Southeast Asian youth regarding their adaptation, and to relate selected background variables to objective and subjective measures of adaptation.

Review of Literature

While all migrants experience trauma as a result of resettlement, refugees may experience more intense trauma because of the involuntary nature of their migration. By definition, refugees have been unwillingly pushed from their country of origin as a result of fear for their safety (Kunz, 1973). Many have endured conditions of violence (Copeland & Harvey, 1986), and these traumatic events undoubtedly influence the adaptation process. Due to their age, young refugees may be particularly vulnerable to the trauma and loss associated with refugee resettlement.

Refugee youth and development. According to Erikson's stages of development, adolescence is the period when a sense of identity is established as well as a sense of social roles (Lerner & Spanier, 1980). For young refugees, the search for identity requires confirmation of attitudes, beliefs, and values at a time when these are in a state of flux and hence ambiguous because of differences between the two societies. For some, this can be problematic,

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especially if the expectations of the old society are inappropriate and those of the new society are not fully understood. When the confusion, conflict, and pressures of forced migration are added to normative developmental factors, the vulnerability of these young persons may increase.

Generally, parents and society, together, act as models to facilitate the adolescent stage of development. In the case of refugees, parents may provide a model of behavior at odds with the new environment (Kovacs & Cropley, 1975). Parental attitudes, beliefs, and values may be better suited to the country of origin than the country of resettlement. According to Haines (1985), young migrants often find themselves charged by their elders with maintaining what appears to them to be an increasingly remote and irrelevant cultural heritage. These discrepancies may be particularly troublesome for young Southeast Asian refugees whose cultures emphasize familial dependency and harmony rather than the individualism found in Western society (Haines, Rutherford, & Thomas, 1981). When cultural differences between the countries of origin and resettlement are as great as for Southeast Asians in Canada, one may expect the normative tasks of adolescent development to be more complicated for young people who have been socialized not only to respect advice from family members but to depend on it (Ellis, 1980; Kwong, 1980; Phung, 1979).

Refugee youth and adaptation. Refugee resettlement involves a complex process of adaptation, which Michalowski (1986) defines as productive participation, both economic and social, as well as advantageous use of opportunities in the country of resettlement. She suggests that primary factors related to adaptation are age at migration (younger age leads to more successful adaptation) and time in the country of resettlement (longer time generally leads to more success in adaptation). Secondary factors include socio-economic and other demographic variables as well as attitudes of both newcomers and members of the receiving society.

According to Scott and Scott (1985), adaptation means achieving an optimal match between the requirements and resources of both the individual and the environment. Factors which contribute to adaptation include English fluency, high socio-economic status prior to migration, diverse cultural experiences, extensive interpersonal relations, and family solidarity.

Brody (1970) defines adaptation as a process of establishing equilibrium with the environment, including having meaningful social relationships. It can include objective aspects, such as economic achievement and belonging to voluntary organizations, as well as subjective aspects, such as a feeling of identification with the new country.

The process of adaptation appears to involve several stages (Stein, 1981). At first, refugees experience a short period of euphoria during which they are glad to be safe and are generally optimistic about life in the new country. Following this period, attention turns to meeting basic survival needs. At this stage, there is little time or energy available for other concerns. Finally, after three to five years, many refugees begin to realize they may never achieve the goals to which they had aspired (Copeland & Harvey, 1986).

For some refugees, learning the language of the new culture may be more difficult than anticipated. This may be discouraging for one cannot get a good job, communicate in grocery stores or department stores, make medical or dental needs known, or make new friends without the functional use of the majority language. Here young people have an advantage as language acquisition is easier among the young than among the old (Montero, 1977; Nyakabwa & Harvey, 1987).

Some, who expected to move easily into the labor force, may find they lack the required educational background (Burke, 1984) or the requisite Canadian experience. While this may not be a problem for young refugees pursuing a Canadian education, it may be a large problem for their parents and indirectly may affect the young people.

As a process, adaptation occurs over time. Its objective success may be indicated by variables such as fluency in the dominant language, economic participation, and friendship patterns. Subjective indicators may include reported feelings of alienation and happiness as well as perceptions of feeling settled in the country of resettlement.

Method

Sampling and data collection. A volunteer sample, consisting of people who attended a recreation centre for Southeast Asian youth in a western Canadian city, was obtained. Selection criteria required participants to be refugees from Vietnam, Laos, or Cambodia and to have attended the centre during April, 1984. Consent to participate was obtained from all subjects. For those younger than 18, an attempt was made to obtain parental permission.

English language questionnaires were completed by 45 subjects under the supervision of the primary researcher. Staff from the recreation centre acted as translators when necessary.

Instruments. The questionnaire, an adaptation of Kim's (1980) instrument, consisted of 109 items and included both closed and open-ended questions.[1] It was designed to collect three types of information: • demographic and background characteristics, such as age, year of migration, current or most recent grade in school, family structure, and socio-economic status of parents before and after migration; • objective adaptation measures, including scales on perceived English language fluency and friendship patterns; and • subjective adaptation including alienation, level of happiness, the degree to which people felt settled in Canada, specific things they did to adapt, and other things they had yet to do in their adaptation.

The English fluency scale (alpha = .76) had three items: "How hard is it to understand Canadians when they speak to you? How well do you speak English? and How well do you read English?". Possible responses to the first item were "always, almost always, about half the time, almost never, or "never"; to the last two items, "none, some, or "well".

The friendship with Canadians scale (alpha = .92) consisted of two items: "How often do you invite Canadian friends to your home? and How often do Canadian friends invite you to their homes?" Responses were from "never" to "more than once per week" on a 6-point scale. The friendship with ethnic group scale (alpha = .91) was calculated in the same way as mentioned above for Canadian friends.

Nine alienation items, used to measure perceptions of adaptation, did not form a unidimensional scale and were treated as separate items in

[1]The instrument was scored for readability and was determined to be at the Grade 6 level, a level considered appropriate for the sample by the Centre's staff. It was pre-tested with ten people who were staff or members of the recreation centre. These responses were not included in the analysis.

subsequent analyses.[2] Self-reported level of happiness was assessed with the question: "Taken altogether, how are things for you these days? Would you say you are very happy, not too happy, or unhappy?". They were also asked whether their life in Canada was "better than life in the country of origin, the same, or not as good" and if they felt "settled, somewhat settled, or not at all settled" in Canada. In addition, they were asked about specific behaviors adopted to facilitate their adjustment in Canada and changes yet to be made. It was considered important to know those things that respondents could remember, in addition to areas that the researchers felt were problematic. Finally, respondents were presented with a list of problems[3] and asked which of the problems they had encountered on arrival and at the time of the study.

Statistical analysis. To describe background variables and the objective and subjective measures of adaptation, frequency distributions were prepared. The English fluency scale, Canadian and ethnic friendship scales, and each alienation item were subjected to multiple regression analyses to determine the relative effect of selected independent variables on these measures of adaptation. The independent variables were age, number of years in Canada, sex, and presence of mother or father in the home. Self-reported levels of happiness and the extent to which people felt settled in Canada were related to age, year in school, and parental presence by the use of gamma and lambda, which are non-parametric measures of association.

Results

Sample description. The majority of the 45 respondents were in school (83%), aged 14 to 23 ($M = 17.7$), and male (73%). Most had been in Canada from three to five years. They were from Vietnam (64%), Laos (24%), Cambodia (7%), and China (4%). While almost half (47%) identified Chinese (Mandarin or Cantonese) as their first language, many (73%) spoke at least two languages, one of which was usually Vietnamese. The majority of respondents (58%) indicated no knowledge of English prior to arrival in Canada. Only 40% reported fathers with them in Canada compared to 91% in the country of origin. Similar figures (56% and 96%) were reported for mothers. Only 31% reported having both parents in Canada.

Parental occupation was used to assess the respondent's socio-economic status. As occupational deflection (accepting employment at a lower level than the country of origin) was marked, relative socio-economic status probably declined as well, although actual social and economic conditions may have been better in Canada than in the country of origin. Fathers who were previously employed in government, management, medicine, teaching, business, translation, secretarial work, carpentry, fishing or farming were currently employed as cooks, dishwashers, machine operators, assembly workers, or garment workers. Others were unemployed or attending school. A similar pattern of occupational deflection was identified for mothers whose previous occupations included nurse, teacher, business woman, dressmaker, doctor, farmer, secretary, housekeeper, and noodlemaker. In Canada, all employed mothers worked as sewing machine operators, except one, who was employed as a kitchen helper. Respondents tended not to know the level of their parents' education (42% for fathers, 47% for mothers). Of those who did, most reported parents having less than a complete high school education (67% of fathers, 76% of mothers).

Objective adaptation: English language fluency. Most respondents (69%) could speak some English, 24% could speak well, and 7% did not answer the question. Most respondents indicated that it was hard to understand Canadians when they speak: 15% said it was "almost always hard"; 40%, "hard about half the time"; and 42%, "almost never" or "never" a problem. In the regression on English fluency, the overall F-value was significant and the selected variables accounted for 31.4% of the explained variance (F (5,39) = 3.114, p = .02, R^2 = .314). The only statistically significant contributing variable was number of years in Canada (Beta = -.473, T significant at .005). These results clearly show that people who lived in Canada longer perceived themselves to have fewer problems with English.

Objective adaptation: Friendship patterns. These respondents seemed to have well-developed friendship patterns among those from their country of origin: 80% reported "five or more" friends, 15% "one to four" friends, and only 4% "no" friends, with an average of 7.7 ethnic friends per respondent. Multiple regression analysis, using the number of ethnic friends, was not significant. In other words, predicting ethnic friendships did not depend on sex, presence of either parent, age, or nunber of years in Canada.

Respondents reported fewer Canadian friends: 40% reported "five or more" friends, 31% "one to four" friends, and 24% "no" Canadian friends. An average of 4.4 Canadian friends were reported. Students in lower grades indicated more Canadian friends than those in upper grades (Gamma -.74). English language fluency was positively associated with the number of Canadian friends (Gamma = .60).

Inviting Canadian friends to the respondent's home was done most frequently (38%) "once per month or less", with 24% more frequently than "once per month", and 18% never inviting them to their homes. Being invited by Canadian friends to their homes showed a similar pattern with 31% reporting invitations "once per month or less", 27% more frequently, and 24% never being invited. In the regression, the overall F-value was significant and the selected variables accounted for 38.7% of the explained variance (F (5, 39) = 4.29, p = .004, R^2 = .387). The most important predictor variable was mother present at home (Beta = -.436), T significant at .004). Having a mother present meant fewer interactions with Canadian friends in their homes or at the respondents' homes. Sex was also significant, with boys more likely than girls to visit or be visited by Canadians (Beta = -.301, T significant at .045). Other predictors were not significant.

Subjective adaptation: Perception. Of the nine alienation items, there was considerable agreement with the following statements: It is easy to make

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[2]Alienation was measured using the following statements to which respondents agreed or disagreed: I feel awkward and out of place in Canada; It is difficult for me to understand the Canadian way of life; It is easy for me to make Canadian friends; I feel like I belong in Canadian society; I feel that the Canadians that I know like me; I feel all alone in Canada; The future looks very bright for me in Canada; As an individual, I can contribute something to Canadian society; and There is little I can do to improve my life in this country.

[3]The list of problems included: language, school work, food, finding friends from your country, getting along with friends from your country, finding Canadian friends, getting along with Canadian friends, disagreements with parents, handling freedom and independence, feelings of not belonging, loneliness, being apart from family members, money worries, learning to get along with people from different ethnic groups, not feeling safe, no problems, other problems such as:

Canadian friends (42%), I feel like I belong in Canadian society (36%), The future looks bright for me (58%), and I can contribute to Canadian society (42%). Many respondents disagreed with the following statements: I feel awkward and out of place in Canada (43%), I feel all alone in Canada (51%), and There is little I can do to improve my life in this country (33%). Overall, agreement with positive items was more frequent than agreement with negative items, showing relative subjective satisfaction. Separate multiple regression analyses were performed for each statement. In only one case, agreement with the statement, "I feel alone in Canada", were the independent predictors of any use, with 29.2% of the variance explained (F $(5,39) = 2.81$, $p = .032$, $R^2 = .292$). Age (using year of birth) was positively related to feeling alone (Beta = -.385, T significant at .019), as was having a father at home (Beta = .310, T significant at .043). In other words, older respondents and those with fathers at home were more likely to feel alone.

In assessing their happiness, the majority of respondents (76%) said they were "very happy or happy", 20% were "not too happy or unhappy". Younger respondents (Gamma = -.62) and those in lower grades (Gamma = -.60) were happier, but level of happiness was not associated with sex, years in Canada, or presence of parents at home.

Two other items suggested positive subjective adaptation. When asked to rate their life in Canada, 49% rated it "better than life in the country of origin", 36% "the same", and 11% "not as good". Feeling "settled" was indicated by 40% of respondents, 44% felt "somewhat settled", and 11% "not at all settled". Students in lower grades felt more settled than those in upper grades (Gamma = -.69). Having a parent at home was weakly associated with feeling settled (for a father at home, Lambda = .24; for a mother at home, Lambda = .16). Feeling settled was also positively related to level of happiness (Gamma = .41).

Subjective adaptation: Behaviors. Specific behaviors respondents said they used to facilitate adjustment in Canada were learning English, becoming familiar with the environment, attending school, and finding friends in their ethnic community; all areas anticipated by the researchers. Respondents also indicated having to change the manner of dress and beginning to "think in a Canadian way". Males mentioned body building to "look cool", looking for Canadian girls, dressing to be "cool", and refraining from gambling. Changes yet to be made included acquiring more language training, education, and money.

Problematic adjustment areas. When asked about problems encountered on first arrival, respondents identified language as the primary problem (67%), followed by school (36%), and by loneliness (13%). These same issues were also identified as current problems. Other aspects of life in Canada which respondents identified as problematic included Canadian food, winter weather, discrimination, and the considerable freedom perceived to be enjoyed by Canadian teenagers. Most (60%) stated that the attitudes and behaviors of their family did not make it hard for them to adapt. Of those indicating family difficulties, the following issues were identified: parents do not understand Canadian ways, parents want children to stay home, and limited communication between parents and children.

Discussion

Michalowski (1986), Scott and Scott (1985), and Brody (1970) identified a number of variables they consider important in the adaptation process, some of which were measured in this study. According to Michalowski (1986), age at migration is most important. On arrival in Canada, most Southeast Asians in this study were relatively young and in most cases younger respondents scored higher on measures of adaptation than older respondents.

Results from this study confirmed Michalowski's (1986) suggestion that time in the country of resettlement is associated with adaptation. Respondents who lived in Canada longer were more fluent in English and they also had more Canadian friends than those less fluent. While many respondents indicated their English skills allowed them to get along in Canada, many identified language as a continuing problem. The implications for social isolation and misunderstanding are great when one considers that more than half of the respondents found it difficult to understand Canadians and hesitated to speak with them for fear of being misunderstood.

For this group, most social participation occurred among their own ethnic groups. Friendships were primarily with those from the same country of origin, although younger respondents, more fluent in English, had more Canadian friends than older ones. Parental presence in the home tended to limit visiting back and forth with friends. The presence of parents may have cemented these young respondents to the ways of the country of origin. Confucian family values may have been more dominant for those individuals with parents in the home, and ties with friends subsequently weaker.

The number of respondents in this study without both parents present was high (69%) compared to the population in general where only 19% of children between 13 and 17 years do not live in two-parent families (Cheal, 1988). Being without customary family support may place the young people in this sample in a particularly vulnerable position because of the importance of family in Southeast Asian cultures. Respondents in this study frequently remarked on the loss of love and care normally given by their families. To quote one respondent, "I never thought I would be so lonely".

As few respondents were employed, they did not directly participate in the economic system. However, if one considers the occupational deflection experienced by their parents, the overall economic status of these newcomers was low. It is probable that the effect of low socio-economic status extends beyond financial aspects to influence factors such as motivation, attitudes, psychological well-being and morale of members, but these relationships were not tested.

Michalowski (1986) has identified advantageous use of opportunities in the country of resettlement as an important aspect of adaptation. The findings from this study suggest that after three to five years in Canada, most young people were reasonably well adapted in terms of feeling happy and settled. Most, however, experienced low economic status, loss of parental support and some ongoing language barriers. While most respondents had relatively well-developed friendship patterns within their own ethnic groups, for most, friendship patterns with Canadians were more limited. Given these constraints, it seems unlikely that these respondents would be in a position to take full advantage of opportunities in Canada. Also, since many of these young people had not completed the tasks of adolescence, other adjustment problems and intergenerational conflict may be in store.

In order to better understand and facilitate the process of adaptation by young refugees, future research should proceed in several directions. First, researchers should refine measures of adaptation. School marks, for example, might be included as Caplan (1985) has done. Second, longitudinal data must be obtained in order to better understand the process of adaptation. Third, researchers should conduct comparative studies with other groups new to Canada to ascertain similarities and differences relative to the process of adaptation. Finally, pilot projects need to be designed, implemented, and evaluated in order to determine the most effective means of facilitating the adaptation of newcomer youth so that they can, indeed, take full advantage of opportunities in the new country.

Home economists, as professionals concerned with the quality of life of individuals and families, are in an excellent position to facilitate the adaptation of refugee youth in Canada. Some ways in which home economists are well-suited to contribute are as program developers and resource persons at school, in community groups, and in government. Programs which emphasize techniques for decision-making, problem-solving, and conflict-management relative to the demands of young people in a new culture can be invaluable (Copeland & Harvey, 1986). Because of their broad, holistic, integrative and familial approach, home economists are appropriate professionals for cross-cultural work if they are knowledgable about and sensitive to differences in family lifestyles, values, and beliefs and are prepared to deal with intangible problems such as family separation, ethnic identity in a new society, English fluency, generation gaps, homesickness and depression, as well as the more tangible issues such as family and financial management. □

References

Brody, E.B. (1970). *Behavior in a new environment: Adaptations of immigrant populations.* Beverly Hills, CA: Sage.

Burke, M.E. (1984). The visible minority woman. *Currents, 1,* 5,7.

Caplan, N. (1985). Working toward self-sufficiency. *Institute for Social Research Newsletter, 13*(1), 4-5,7.

Charron, D., & Ness, R. (1981). Emotional distress among Vietnamese adolescents: A statewide survey. *Journal of Refugee Resettlement, 1*(3), 7-15.

Cheal, D. (1988). *Winnipeg Area Study.* Winnipeg: University of Manitoba.

Copeland, N.H., & Harvey, C.H. (1986). Southeast Asians in Canada: Concern for late phases of their resettlement. *Canadian Home Economics Journal, 36*(3), 111-113.

Ellis, A.A. (1980). *The assimilation and acculturation of Indochinese children into American culture.* Sacramento, CA: Dept. of Social Services, Health and Welfare.

Haines, D. (1985). Toward integration into American society. In D. Haines (Ed.). *Refugees in the United States* (pp. 37-55). Westport, CT: Greenwood.

Haines, D., Rutherford, D., & Thomas, P. (1981). Family and community among Vietnamese refugees. *International Migration Review, 15*(1), 310-319.

Huyck, E.E., & Fields, R. (1981). Impact of resettlement on refugee children. *International Migration Review, 15*(1), 246-254.

Kim, Y.Y. (1980). *Survey of Indochinese refugees: Introduction, summary, and recommendations. Vol. 1. Research project on Indochinese refugees in the state of Illinois.* Chicago: Refugee Resettlement Program, Illinois Dept. of Public Aid.

Kovacs, M.L., & Cropley, A.J. (1975). *Immigrants and society: Alienation and assimilation.* Sydney, Australia: McGraw-Hill.

Kunz, E.F. (1973). The refugee in flight: Kinetic models and forms of displacement. *International Migration Review, 7,*(2), 125-146.

Kwong, E. (1980). *After the trauma: A study of the culture shock, adjustment problems and adaptation process of the Vietnamese refugees of Chinese descent for the Christian and Missionary Alliance specialized ministry.* Unpublished master's thesis, Wheaton College, Wheaton, IL.

Lerner, R.M., & Spanier, G.B. (1980). *Adolescent development: A lifespan perspective.* New York: McGraw-Hill.

Michalowski, M. (1986, June). *Some comments on the methodological approaches to the studies of the adjustment of immigrants in Canada.* Paper presented at the Canadian Population Society Annual Conference, Winnipeg, Manitoba.

Montero, G. (1977). *The immigrants.* Toronto: James & Lorimer.

Nyakabwa, K., & Harvey, C.D.H. (1987, November). *Adaptation to Canada: The case of black immigrant women.* Paper presented to the Canadian Research Institute for the Advancement of Women Annual Meeting, Winnipeg, Manitoba.

Phung, T.H. (1979). The family in Vietnam and its social life. In J.K. Whitmore (Ed.). *An introduction to Indochinese history, culture, language and life* (pp. 77-84). Ann Arbor: University of Michigan. Center for South and Southeast Asian Studies.

Scott, W.A., & Scott, R. (1985). Some predictors of migrant adaptation available at selection time. *Australian Psychologist, 20*(3), 313-343.

Stein, B. (1981). The refugee experience: Defining the parameters of a field of study. *International Migration Review, 15,* 320-330.

A Study of Consumer Knowledge, Attitudes, and Behavior in a Selected Group of Quebec CEGEP Students

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Abstract

Consumer education has been promoted in schools in many countries in recent decades, and the curriculum content has been subject to scrutiny and change. In Quebec CEGEPs (Collèges d'enseignement général et professionel) no formal consumer education program is available. This study investigates the consumer knowledge, attitudes, and behavior of a target population in Quebec as a first investigative step to the development of a program. The respondents viewed their knowledge of consumer concepts as inadequate. Knowledge scores were lowest in the topic areas of finances, contracts, and consumer protection. Respondents who spoke a language other than French or English at home and female respondents generally scored lower. Students who had previously taken any consumer education courses scored higher than those who had not. Self assessment of consumer knowledge and actual scores were congruent. The desirability of providing consumer education in the CEGEPs was almost unanimously supported.

Résumé

Au cours des récentes décennies, les écoles de nombreux pays encouragent l'éducation du consommateur tendis que les programmes scolaires font l'objet d'un examen approfondi et de modifications. Dans les CEGEP (collèges d'enseignement général et professionnel) du Québec, on n'offre aucun programme d'éducation du consommateur officiel. Cette étude examine la connaissance, les attitudes et le comportement d'une population de consommateurs cibles du Québec; ceci constitue une première étape d'exploration en vue de la mise au point d'un programme. Les répondants ont déclaré que leurs connaissances des concepts de consommation étaient inadéquates. Les plus bas des pointages sur la connaissance concernaient les secteurs des finances, contrats et protection du consommateur. Les femmes et les participants parlant une langue autre que le français ou l'anglais à la maison affichaient généralement les pointages les plus bas. Les étudiants ayant déjà assisté à des cours d'éducation du consommateur ont mieux réussi que leurs collègues n'ayant jamais suivi ces cours. L'évaluation personnelle des connaissances relatives à la consommation et les pointages étaient conformes. L'offre des programmes d'éducation du consommateur au niveau du CEGEP a été pratiquement appuyée à l'unanimité.

In the last two decades consumer education programs have been promoted in many parts of the world (Australian Consumer's Association, 1984; BEUC, 1975; Green, Beck, & Creech, 1982; IOCU, 1981; National Consumer Council, (UK), 1983; United Nations, 1986). Simultaneously, researchers in North America and Europe have examined the content of consumer education curricula (Bannister & Monsma, 1982; Hellmann-Tuitert, 1985; Jensen, 1980).

The long-term objective of the research was to provide a basis for the development of a consumer education program at the CEGEP level in Quebec (Collèges d'enseignement général et professionel, equivalent to Grades 12 and 13 in other Canadian provinces). This paper describes a survey of the consumer knowledge, attitudes, and behavior of a target population of English public CEGEP students.

There is no formal consumer education program available at the CEGEP level, although the concept of consumer education has been included in the high school curriculum, notably in a compulsory level 2 (Grade 8) home economics course. Consumer education at the CEGEP level may be useful as entrance requirements to CEGEP often preclude selecting consumer education in senior high school.

In Quebec, the CEGEPs provide free post secondary public education for students who successfully graduate from level 5 (grade 11) high school. Two year pre-university programs in the Arts and the Sciences and three year career programs in a wide range of subjects are offered. The CEGEPs have

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some similarities to community colleges elsewhere in Canada.

Review of Literature

Global economic changes have heightened public awareness during the past two decades of the importance of providing universal consumer education in schools and discussion of the important concepts that should be included (Hellmann-Tuitert, 1985; Langrehr, 1979; United Nations, 1986). In Canada, the new economic and political emphasis on de-regulation, as for example recent developments with financial institutions, has increased the need for the consumer to be better informed and able to manage more effectively in the marketplace. In response to these trends, the new concepts included in consumer education have expanded the traditional approach of enabling the consumer to cope with existing circumstances. Today, consumer education should help the individual to achieve competence at several levels; it is desirable to be able to plan, question, make effective consumer decisions, and use resources efficiently. Consumers should also be capable of participating in and influencing economic, social, and political decisions that concern the consumer's interest. This continuum of consumer behavior ranging from coping to influencing change is discussed in Bannister and Monsma's Classification of Concepts (1982). In contrast with the traditional approaches, which have tended to cater to middle-class western society often concentrating on "buymanship" skills (Herrmann, 1982), Bannister and Monsma (1982) developed a framework for the discipline based on three key concepts: decision making, resource management, and citizen participation, all of which are equally applicable in affluent industrialized societies and in developing countries. They define consumer education as "the process of gaining the knowledge and skills needed in managing consumer resources and taking actions to influence the factors which affect consumer decisions" (p. 5). A consumer action charter developed by the International Organization of Consumers Unions (IOCU) (1981) also reflected this new "socially responsible perspective" by including the concepts of critical awareness, action and involvement, social and ecological responsibilities and the recognition of the impact of actions and decisions on others and on the physical environment (Hellmann-Tuitert, 1985).

In the United States, a nationwide survey was conducted to assess consumer skills and attitudes among 17 year old high school students (National Assessment of Educational Progress (NAEP), 1978a, 1978b, 1979). The published results for national and selected population groups were limited to percentage responses for single items relating to eight topics: consumer behavior, contracts, economics, energy, finances, consumer mathematics, consumer protection, and purchases. Results indicated that while students' recognition of the need to question pointed to their increasing sophistication as consumers, the knowledge base required to be effective was lacking. Significant differences were found between males and females and among cultural groups. However, the panel of analysts concurred that culturally or sexually based curriculum should be avoided. The panel also emphasized "the many facetted role of consumers and their potential for impact on the economy, and thus, the necessity for forceful, comprehensive consumer education." (NAEP, 1978d, p. 46).

Several studies have been carried out in the United States to determine whether courses in consumer education could improve student competency and also to examine the texts and the teachers involved (Garman, 1979; Hawkins, 1977; Hermann, 1982; Langrehr, 1979; Lloyd, 1983; Lofgren & Suzuki, 1979). A study of high school texts on consumer education, published between 1938 to 1978, led Hermann (1982) to conclude that content was neither comprehensive nor adequate and that the changing needs of the social and economic systems had not been met. Garman (1979) reported an average score of below 60% on a Test of Consumer Competencies administered in a nationwide assessment of prospective teachers in the United States. Further, he noted that prospective teachers who had taken any consumer-related courses scored significantly higher than those who had not. Langrehr (1979) investigated the effectiveness of consumer education programs using test questions on the topic areas of credit, money management, insurance, and savings and investment. Langrehr found that students who had taken consumer education courses exhibited more favorable attitudes towards business and obtained significantly higher scores on tests for consumer competency. The study compared such students with those who had taken only economics courses or who had taken neither consumer education nor economics courses. Langrehr acknowledged previous studies which discounted the significant effect of having taken relevant consumer education courses, but suggested reasons for the discrepancies in results obtained in other studies. For example, less able students may be over-represented in non-compulsory consumer education courses. He also noted that few studies had controlled for such factors as relevant courses previously taken by respondents or the respondent's level of intelligence.

Despite a computer search of the literature conducted through ERIC at McGill University, the only relevant Canadian study found was a pilot project carried out by the Ministry of Consumer and Commercial Relations of Ontario (1977) which investigated the effects of a consumer education program on a whole community. Responses to questionnaires, which were administered to the general public and to all Grade 10 high school students in the community, indicated that students' perception of their ability to handle purchasing problems was not backed by their consumer knowledge in this area. The study reported that an "overwhelming majority" of all participants, adults and students, believed that consumer education should be part of the school curriculum.

All provinces, except Manitoba and Alberta, listed consumer studies as a course offered in some form at the senior high school level (Peterat, 1984). Only in British Columbia and Quebec were such courses compulsory. In Quebec, the Ministry of Education (Gouvernement du Québec, 1981) included consumer education content in a compulsory Secondary 2 (Grade 8) home economics curriculum.

Objectives

As stated previously, the long-term objective is to promote the development of consumer education at the CEGEP level in Quebec. This paper reports some parts of the study which sought to examine and describe the consumer knowledge, behavior, and attitudes of the English[1] public CEGEP population. In addition, the relationship of selected variables (sex, language of

[1]A study of an equivalent French CEGEP population was completed by Jennaway-Eaman (1987).

the childhood home, self assessment of level of consumer knowledge, and number of consumer or consumer-related courses taken) to scores on a consumer knowledge test was examined.

In Quebec, an essential aspect of the survey was that the CEGEP population, though having a similar educational background, come from diverse linguistic and cultural environments. Canada is a pluralistic society, and in Quebec this condition is heightened by a substantial proportion of the population whose language of the childhood home is neither English nor French. These students may have attended school in both official languages, and speak a third language at home.

Methods

The questionnaire. A U.S. questionnaire was used as a source of items (NAEP, 1978c). Over 100 items were developed for the American study; many of the items were sub-divided into several parts. No one respondent in the nationwide survey was given the entire questionnaire. A panel of 36 professionals with appropriate backgrounds in education, research, consumer organizations, and government examined and reviewed the questions for the NAEP. The questions were pilot tested and the time required to complete each item noted. It was accepted that some questions could be concerned with concepts important in several consumer areas.

Six subjects from the U.S. survey (consumer behavior, economics, finances, contracts, consumer protection, and purchases) were selected for this study and individual items were modified to reflect Canadian and Quebec consumer law. The relatively small scale of the Quebec study, as compared to the study in the United States, made it essential that each respondent should answer the same set of questions.

In a general analysis of the questions included in the Quebec study, it was found that the content could be grouped according to Bannister and Monsma's classification of concepts (1982). Questions covered the general concepts of decision-making (24 items), resource management (22 items) and citizen participation (15 items), although some questions encompassed more than one concept.

A pilot test was conducted with a sociology class of 18 University students. The average age of the students was 20 years, none of whom were enrolled in the Consumer Services major or had any prior knowledge of the questionnaire's content. As a result of this pilot test, improvements were made to the questionnaire format but the content remained unchanged.

Although not all of the results obtained are reported in this paper, the complete content of the questionnaire[2] is described. Consumer knowledge scores were obtained for the six consumer topics listed below. Variables measuring consumer knowledge demanded choosing a single response, usually with the option of "I don't know"; only a correct response scored a point. The maximum score for each topic is given in parentheses. The total possible score for the consumer knowledge questions was 108 points. The consumer topics included:

- the behavior of consumers in the marketplace: advertising, decision making, shopping (26 points);
- contracts: credit cards, payments by instalments (16 points);
- economics and the marketplace: respondent's understanding of this relationship (17 points);
- personal finances: banking, credit, insurance (20 points);
- consumer protection: product safety, purchases, consumer actions (20 points); and
- purchases: consumer purchasing behavior (9 points).

Additional responses included questions concerning behavior, attitudes,[3] and background characteristics of the respondents. Information about each respondent included: the college and program of enrolment; details of any consumer education, or courses including consumer information, they had taken; whether they regularly kept a written record of their expenses; and other personal characteristics.

Respondents were also asked to assess, on a 3-point scale, the degree to which school, the family, friends, and the media had contributed to their consumer knowledge. Respondents rated their own knowledge and abilities on a 4-point scale in six specified areas of consumer education[4] which are associated with the six consumer topics listed above.

Sampling. The population for this research included all students enrolled at English public CEGEPs in the province of Quebec. The data were collected in the Winter term, 1984, and all seven English public CEGEP colleges or campuses in Quebec were sampled.

Population statistics (September 1982) used were the latest enrolment figures available at the time when the sample design was created. There were four separate college administrative complexes with a total population of 22,307. All the colleges were within the census metropolitan area of Montreal, with the exception of two campuses of one college administration. The specific college attended by students was affected by their preference and the choice of programs offered, not necessarily by the proximity of the college to the student's home.

The sample size for a population of this size (22,307) when the study is explorative (little or nothing is known of the probable results) must be the most conservative or the largest sample recommended. The sample size for a confidence level of 95% assuming a 50% distribution of any sampled attribute, was between 377 and 381 (Arkin & Colton, 1968); 483 questionnaires were distributed, about 20% in excess of the number required.

The sampling method used was one of probability proportionate to size (PPS); this is a more sophisticated form of cluster sampling (Babbie, 1983; Kish, 1965). Each college or campus was represented in the sample proportionately to its size in the total English public CEGEP population. Each pro-

[2]The questionnaire was carefully constructed to be capable of self-administration, to be non-threatening, and to retain the respondent's interest and attention. A copy of the questionnaire (22 pages) is available in French or English on request.

[3]Variables investigating attitudes and behavior were concerned with attitudes that may affect actual consumer behavior and the type of action a respondent would take in specific circumstances.

[4](1) How would you rate your knowledge of the physical and psychological conditions which can influence consumer decisions?
(2) How would you rate your understanding of the effect that economic and consumer decisions may have on each other?
(3) How much do you know about how to establish and use credit?
(4) Do you feel that you know enough to avoid being misled or cheated when buying goods or services?
(5) Do you feel that you know enough to be capable of protecting your rights if you receive goods or services that are unsatisfactory?
(6) How would you assess your ability to judge the quality and prices of goods and services?

gram offered in the English public CEGEPs was listed and identified by a 3-digit number range proportionate to the percentage of the population enrolled in that program. A random number selection from this list of programs was used in selecting the samples from each college. It was logistically impossible to list and draw at random particular classes within programs. The key factor for selection was that the classes used had the most students enrolled in the selected program.

Data collection. CEGEP colleges are autonomous bodies and the method of distributing the questionnaires had to be by separate agreement with each college administration. Student participation was voluntary, and most of the English CEGEP administrators could not ensure the completion of questionnaires in class time. Therefore, although the questionnaire matched a class period, it was also judged as the maximum length of time one might expect student co-operation. Questionnaires were generally distributed in class by the CEGEP administrator, however, only one class was allowed to complete the questionnaire in class time. Students within the class who were enrolled in other programs were accepted as part of the sample.

Analysis. Descriptive statistics including the multiple response procedure, analysis of variance, and *t*-tests were used in the analyses. Respondents' scores for each of the six sections measuring consumer knowledge are expressed as a percentage unless otherwise indicated as raw mean scores. The total knowledge score is the mean of the scores for the six sections; each section is thus given equal weight.

Results and Discussion

The rate of return of distributed questionnaires was 57%, of which only 4 were discarded, leaving 269 usable questionnaires for the data analysis. Babbie (1983, p. 226) suggests that a response rate of at least 50% is adequate and one of at least 60% is good. Increasing the sample size further was not considered appropriate since participation was voluntary and any increase could not be claimed to reduce any non-response bias.

No weightings for colleges or programs were used in the analysis for several reasons. The objective was to survey the whole CEGEP population, and the individual college population did not necessarily reflect the regional population. All programs are not offered at all colleges, thus weighting to improve college representation might distort program representation. There was considerable homogeneity of the population for age and years of education which reduced problems of bias that these variables might have added.

This paper concentrates on the results obtained for consumer knowledge questions and the relationship between knowledge and the independent variables of language spoken, sex, relevant consumer courses taken, and self-assessed level of consumer knowledge. The content of consumer knowledge questions asked encompassed the approach suggested by Bannister and Monsma's classification of consumer education concepts (1982). The results reported are part of those obtained in a larger investigative analysis; not all the results of areas covered in the questionnaire are included in this paper.

Characteristics, attitudes, and behavior of respondents. Forty-eight (48) percent of the respondents were male, 81% aged between 18 and 20 years. Eighty-one (81) percent were born in Canada; only 2% had lived in Canada for less than 5 years. Sixty-four (64) percent spoke English most frequently in their childhood home, 13% spoke French, and 23% spoke a language other than French or English. Eighty (80) percent had worked for wages at some time during the previous year; 56% had taken no responsibility for household expenses and were dependent on their parents. Seventy-three (73) percent kept no written record of their expenses.

Forty-seven (47) percent were enrolled in pre-university arts, 31% in pre-university science, and 22% in a variety of terminal career programs. These enrolment figures are reflected in the future intentions expressed by 78% of the respondents to continue their studies after CEGEP.

In response to an open-ended question which defined consumer education and consumer information, 50% reported having taken one or more courses related to consumer education or including consumer information. Specifically, 22% had taken economics courses, 18% business courses, 17% consumer-oriented courses, and 6% other courses with related content. Two questions addressed respondents' attitudes about the need for consumer education in the school curriculum; each question required a different response to confirm complete understanding by the respondent. Ninety-three (93) percent believed that consumer education could and should be taught in the CEGEP curriculum.

Consumer knowledge scores. The mean total score for consumer knowledge was 65%. The section on consumer behavior had the highest mean score of 74%; the section on finances had the lowest mean score of 48%. Males had higher mean scores for all six sections. Table 1 presents mean scores, expressed as percentages, for language and sex subgroups for the six areas of consumer knowledge examined.

Relation between knowledge and characteristics. The statistical significance of the association between knowledge scores and selected characteristics and profiles was examined using analysis of variance and *t*-test procedures ($p < .01$).

Table 1. Consumer Knowledge Scores of Males and Females of Different Language Groups

	Mean Knowledge Scores (%)							
	English		French		Other[a]		Total	
Consumer Topic	M	F	M	F	M	F	M	F
n	89	80	15	19	24	38	128	137
Consumer behavior	75.8	73.6	73.8	72.5	71.6	69.2	74.7	72.2
Contracts	70.4	68.2	69.2	70.7	65.4	63.0	69.3	67.1
Economics	76.9	69.9	80.0	65.6	73.3	65.6	76.6	66.4
Finances	53.0	48.7	59.3	40.8	43.8	33.9	52.0	43.5
Consumer protection	63.0	61.2	64.7	57.9	56.7	54.3	62.0	58.8
Purchases	73.4	73.2	74.1	73.7	62.5	63.2	71.4	70.5
All topics	68.8	65.8	70.2	63.5	62.2	57.2	67.7	63.1

[a]Language spoken was other than French or English in the childhood home: languages spoken included Italian, Greek, Portuguese, Chinese, Arabic, Hindi, Spanish, Rumanian, Lithuanian, Inuktitik, and Vietnamese.

Table 2. Differences in Consumer Knowledge Scores Between Males and Females

Consumer Topic (maximum points)	Male (n = 129)		Female (n = 140)		
	M	*SD*	*M*	*SD*	*t*-value
Consumer behavior (26 points)	19.4	2.3	18.8	2.6	1.97
Contracts (16 points)	11.1	2.3	10.7	2.3	1.25
Economics (17 points)	13.0	2.4	11.3	2.9	5.30*
Finances (20 points)	10.4	3.5	8.7	3.5	3.87*
Consumer protection (20 points)	12.4	2.6	11.9	2.5	1.67
Purchases (9 points)	6.4	1.7	6.4	1.5	0.17
All topics (108 points)	72.7	9.3	67.8	10.7	3.98*

$^{*}p < .01$

Sex and language. Significant differences were found between subgroup means for males and females for the total score for consumer knowledge and for the sections on economics and finances with females having lower scores (Table 2).

Respondents whose language at home was other than French or English were found to have significantly lower scores for the total score and for the sections on consumer behavior, economics, finances, consumer protection, and purchases (Table 3). These findings suggest that the influence of the home can be of more assistance as a source of consumer knowledge when the language most frequently used at home is one of the official languages in Canada.

Education. The program of enrolment was not found to be significantly related to consumer knowledge scores. However a significant relationship was found between the total number of any type of consumer education course taken (50% had taken no courses) and the total score and the scores for the sections on finances and purchases. Respondents who had taken a consumer education course of *any* type had significantly ($p < .01$) higher scores than those who had not taken any. If respondents had taken more than one course, scores obtained continued to improve.

The association between the total scores and the number and specific types of consumer education course was also examined. Business-oriented courses were the only specific type of consumer education course taken found to be significantly associated with higher scores. Economic-oriented and consumer-oriented courses were not related significantly to scores obtained. It is noted that it was possible to clearly identify business and economic courses from the responses given, and these courses had usually been taken very recently. However, it was more difficult to identify consumer-oriented courses which were diverse and varied from a CEGEP course on "Consumer Chemistry" to Secondary 2 (Grade 8) Home Economics. Possible conclusions are that the value of consumer-oriented courses cannot be judged accurately from this survey. Although they may include some consumer information, they may not fulfill the criteria for a consumer education course, or such courses may have been taken much earlier and at a lower level than the business or economic courses specified. Further, although the text of the questions defined and differentiated between consumer education courses and courses containing consumer information, different respondents listed identical courses in either category. It was not possible to distinguish between what may have indicated varying course content and differences in respondents' perceptions of similar courses.

The results raise the question of which factor had the greater influence and may explain the large disparity of scores between males and females for the topics on finances and economics. Was the key factor the sex of the respondent or having previously taken relevant courses, particularly business courses? In the sample, business and commerce programs had a larger male enrolment. Respondents enrolled in these programs were more likely to have taken business courses with consumer education content which, the results indicate, were significantly associated with the mean scores obtained. More studies focussed on this aspect, including a content analysis of courses involved could be helpful in determining the contributions of business courses to consumer knowledge.

Table 3. Differences in Consumer Knowledge Scores for Those Who Spoke Other Than English or French

Consumer Topic (maximum points)	Language				
	Other (n = 66)		English/French (n = 203)		
	M	*SD*	*M*	*SD*	*t*-value
Consumer behavior (26 points)	18.3	2.5	19.4	2.4	-3.00*
Contracts (16 points)	10.3	2.5	11.1	2.2	-2.51
Economics (17 points)	11.1	3.3	12.5	2.5	-2.98*
Finances (20 points)	7.6	3.7	10.1	3.3	-4.86*
Consumer protection (20 points)	11.3	2.6	12.4	2.5	-3.14*
Purchases (9 points)	5.8	1.5	6.6	1.5	-3.85*
All topics (108 points)	64.4	10.9	72.1	9.4	-5.12*

$^{*}p < .01$

Table 4. A Comparison of Actual Consumer Knowledge Scores[a] and Students' Self-Assessments of Consumer Knowledge

Consumer Topic		Consumer Knowledge			
		Self-Assessment Know A Great Deal	Actual Score *M*	Self-Assessment Know Little	Actual Score *M*
Being misled or cheated	*Male*	43.2%	69.4%	3.0	60.1%
	Female	23.6	67.1	11.4	53.4
Protection of rights	*Male*	26.4	69.2	9.3	65.9
	Female	19.6	66.8	19.6	57.1
Judge quality and price	*Male*	24.8	69.1	14.0	64.0
	Female	12.9	67.0	31.0	58.7
Influences on decisions	*Male*	21.9	70.1	23.5	64.9
	Female	12.2	69.4	38.8	58.2
Economics and consumers	*Male*	20.6	72.3	27.8	63.9
	Female	7.1	63.9	42.8	60.3
Credit usage	*Male*	12.4	71.4	45.8	63.6
	Female	4.3	73.3	63.6	60.4

[a]A total consumer knowledge score (the mean of the scores for the six consumer topics in Table 1) was calculated separately for those who said they knew a great deal or knew little about the consumer topics in the self-assessment measure.

Self assessment. Each respondent assessed their knowledge in six areas. The multiple response procedure was used to create a composite self assessment for each respondent which was compared to consumer knowledge scores. Results indicate that respondents' self assessment of consumer knowledge and actual scores were congruent. For example, as shown in Table 4, 23.6% of female respondents considered they knew a great deal about how to avoid being mislead or cheated; the mean consumer knowledge score was 67.1%. In contrast, 11.4% of the females assessed they knew little about this subject; the mean consumer knowledge score was 53.4%. Males always assessed themselves higher than females, although the topics for which males and females had the greatest or least confidence in their ability or knowledge were similar.

Summary and Conclusions

The English CEGEP population is a minority group within the Quebec CEGEP system. For this reason the study is restricted in scope and has been recently replicated in the French CEGEP sector (Jennaway-Eaman, 1987).

The majority of respondents were anglophones. However, a substantial minority (23%) spoke a language other than French or English at home and a smaller group (13%) were French speaking.

Although there are no guidelines concerning "adequate" levels of knowledge, the results of the survey clearly indicate the lowest levels of consumer knowledge scores are in the area of personal finance including banking, insurance and credit, and in the area of consumer protection. Respondents who had taken any previous courses with consumer education or related content, notably business courses, had higher scores, particularly in the general area of finances. A majority of respondents perceived a need for additional knowledge about establishing and using credit. Respondents who spoke other than French or English at home were the most disadvantaged, as evidenced by their scores and their own assessment of their knowledge; this was especially true for females.

Students' self-assessment ratings were notably in step with the knowledge scores they obtained. The conclusion may be drawn that this accurate self assessment, and the almost unanimous approval to incorporate consumer education as part of the school cirriculum, indicate acceptance of both their needs and their inadequate level of consumer knowledge.

It would be useful to investigate further the contribution of those present courses offered which significantly affect knowledge scores. Further research is also required to explain the nature of the disadvantage for females and/or of speaking a language other than French or English in the home, and how these disadvantages may be compensated for or removed.

Finally, student recognition of the importance of consumer education in the CEGEP school curriculum is emphasized. Consumer needs for information and education to manage efficiently in the marketplace have been recognized by government institutions. Bannister and Monsma's (1982) classification emphasized that consumer education should promote informed private and public decision making, an understanding of the nature and the role of the marketplace, the rights and responsibilities of all the parties involved and citizen participation.

The results of this survey indicate that students want consumer education to be taught in school; that there are several areas in which many students consider their knowledge is inadequate; and that no evidence is presented that a broader approach to planning consumer education would not be accepted and advantageous. Consumer education programs have the potential to contribute to a better quality of life. Attitudes and behavior can be influenced by knowledge. The importance is emphasized of providing adequate education to promote informed decision making and understanding of the marketplace, and the rights and responsibilities of consumers, government, and business. The author continues to promote home economics as the appropriate discipline for this holistic approach to planning consumer education curriculum. □

References

Arkin, H., & Colton, R.R. (1968). *Tables for statisticians* (2nd ed.). New York: Barnes and Noble.

Australian Consumer's Association. (1984). *Educating Australian consumers.* Conference publication, Sydney, July, 1984. (Available from Australian Consumer's Association, 57 Carrington Rd., Merrickville, NSW, 2204, Australia).

Babbie, E.R. (1983). *The practice of social research* (3rd ed.). Belmont, CA: Wadsworth.

Bannister, R., & Monsma, C. (1982). *Classification of concepts in consumer education* (Monograph 137). Cincinnati, OH: South-Western Publishing.

Bureau European des Unions de Consommateurs, BEUC. (1976). *Consumer education in the schools.* Brussels, Belgium: Author.

Garman, E.T. (1979). The cognitive consumer education knowledge of prospective teachers: A national assessment. *Journal of Consumer Affairs, 13*(1), 54-63.

Gouvernement du Quebec, Ministere de l'Education. (1981). Direction generale du developement pedagogique, 16-4122A. *Secondary school curriculum, Home economics, General education, Secondary II.* Quebec, PQ: Author.

Green, H., Beck, C., & Creech, M.C. (1982). Consumer education: A review of recent developments. *International Organization of Consumers' Unions Seminar.* (Oct. 1982). Ottawa, ON. (Available from Consumer Education Resource Network, 1555 Wilson Blvd. Rossyln, Virginia 22209).

Hawkins, C.H. (1977). A study of the use of consumer education concepts by high school graduates. *Journal of Consumer Affairs, 11*(3), 122-127.

Hellmann-Tuitert, G. (1985). *Promoting consumer education in the schools.* Penang, Malaysia: International Organization of Consumers Unions (IOCU).

Hermann, R.O. (1982). The historical development of the context of consumer education: An examination of selected high school texts. 1938-1978. *Journal of Consumer Affairs, 16*(2), 195-223.

International Organisation of Consumers Unions (IOCU). (1981). *Consumers in a shrinking world: Proceedings of 10th IOCU World Congress, Resolutions adopted by the 10th IOCU Congress.* The Hague, Netherlands: Author.

Jennaway-Eamen, E. (1987). *A study of consumer knowledge, attitudes, and behaivor of a selected group of Quebec French CEGEP students.* Unpublished research, McGill University, Montreal, PQ.

Jensen, H.R. (1980). *Socially oriented consumer education.* Arhus, Denmark: Arhus University.

Kish, L. (1965). *Survey sampling.* New York: J. Wiley.

Langrehr, F.W. (1979). Consumer education: Does it change student's competencies and attitudes? *Journal of Consumer Affairs, 13*(1), 41-53.

Lloyd, J.H. (1983). Consumer and economic education recommendations for policy-makers. In Karen Goebel (Ed.), *Proceedings of the 29th Annual Conference of the American Council on Consumer Interests* (pp 163-165). Columbia: University of Missouri, ACCI.

Lofgren, W.L., & Suzuki, W.N. (1979). An assessment of the competency of secondary school teachers in consumer education, economics and personal finance. *Journal of Consumer Affairs, 13*(2), 380-385.

Ministry of Consumer and Commercial Relations of Ontario. (1977, April). *A pilot project in consumer education* (Research Report), Toronto: Author.

National Assessment of Educational Progress (NAEP). (1978a). *National assessment's consumer skills assessment.* Research report (Feb. 1978) (no number given). Educational Testing Service. Princeton, NJ (ERIC Document Reproduction Service No. ED 155 116).

National Assessment of Educational Progress. (1978b). *Guide to an assessment of consumer skills.* Report — Classroom materials (Aug. 1978) (Contract No: OEC-0-74-0506) Educational Testing Service. Princeton, NJ (ERIC Document Reproduction Service No. ED 163 181).

National Assessment of Educational Progess. (1978c). *Consumer skills items. A collection of consumer skills items for state and local education agencies to draw upon in custom-building their own consumer skills instruments.* Questionnaire (Aug. 1978) (Contract No. OEC-0-74-0506) Educational Testing Service. Princeton, NJ (ERIC Document Reproduction Service No. ED 163 182).

National Assessment of Educational Progress. (1978d). *Teenage consumers: A profile. Results of the 1978 national assessment of consumer skills and attitudes.* (Research report No. ECS-R-09-CN-01, Contract No. OEC-0-74-0506) Educational Testing Service. Princeton, NJ (ERIC Document reproduction Service No. ED 174801).

National Assessment of Educational Progress. (1979). *Consumer skills results manual.* (Report No. 09-CSK-03). Educational Testing Service. Princeton, NJ.

National Consumer Council (UK). (1983). *A better class of consumer: An investigation into consumer education in secondary schools.* London, England: Author.

Peterat, L.B. (1984). *Home economics: A survey of provincial curricula at secondary level.* Report. Frederickton: University of New Brunswick, Faculty of Education.

United Nations. (1986). *Guidelines for consumer protection* (General Assembly Resolution 39/248 adopted by consensus, 9 April 1985). New York: Department of International Economic and Social Affairs.

Abstracts of Current Literature

Family and Consumer Studies

Avoided conservations: How parents and children delay talking about widowhood and dependency in later years.

Synge, Jane. (1988)
Aging and Society, 8, 321-335.

Many parents and their grown-up children have not discussed what might happen should parents become seriously ill or unable to take care of themselves. This Canadian study surveyed 464 middle-aged and elderly residents of the Hamilton area. Over seventy-five percent of the respondents felt it was important for parents and children to discuss these matters and most felt that the parents should be the ones to initiate the discussion. Both the middle-aged child and elderly parents have rarely discussed with siblings, relatives or friends the possibility of the parent's dependency. The most likely event to precipitate a discussion is the parent's own illness, the death or illness of the other parent or of a friend or relative. This lack of discussion does not mean a lack of concern for the parents. The survey revealed that elderly men seldom discuss their wives' future with their children. Several explanations for this lack of discussion are suggested, including an unwillingness to accept a changing family structure, mortality of parents and the parents' view of non-family care.

The involvement of selected unemployed and employed men with their children.

Radin, Norma and Harold-Goldsmith, Rena (1989)
Child Development, 60, 454-459

The study was conducted to determine if the hypothesis regarding predictors of a father's domestic work would be supported in a sample of unemployed men, as well as, working fathers. The sample consisted of 48 lower-middle class intact families with a child enrolled in a preschool or kindergarten class. Seventeen fathers were unemployed and 31 were employed. During the interview, details of the father's involvement in child-rearing were collected.

The results revealed that there was more father involvement when the father was unemployed, the mother was working, when the father had a more flexible view of his role and when the child was oldest or close to it according to birth order. the latter 3 variables predicted participation by employed fathers. In a small group of jobless fathers, the father's ideology concerning the paternal role was associated with his participation.

Attitudes about having children: A study of 600 couples in the early years of marriage

Neal, Arthur G. and Groat, Theodore (1989)
Journal of Marriage and the Family, 51, 313-328.

The current study examined the ambivalance and the hostility directed toward children by couples in the early years of marriage. The perceived advantages and disadvantages of children revealed by the study distinguished four groupings of attitudes toward children: a) ambivalance b) pro-children c) anti-children d) indifference.

The sample consisted of 610 couples, who were within their first six years of marriage. A questionnaire was completed by both the husband and wife, individually. The results revealed the primary advantage of having children was in an emotional context, while the primary disadvantage was the way in which children interfere with recreational and economic interests. Several variables, when highly scored, were associated with positive attitudes toward children, such as traditionalism, religiosity and societal integration. High scores on other variables indicated a negative attitude toward children, such as the female labor force participation, career development and enhancement of lifestyle.

The attitudes of some young couples has changed dramatically from the time of their parents. Communication and interaction are even more important, so that they are aware of the other's possible differential views on children or other important matters.

How children propose to deal with the criticism of their teachers and classmates: Developmental and stylistic variations

Adalbjarnardottir, Sigrun and Selman, Robert L. (1989)
Child Development, 60, 539-550.

The sample for the study consisted of 60 children (30 boys, 30 girls) between the ages of 7-12. During the interview, the child was presented with two everyday dilemmas, one involving a classmate and the other with the teacher, which was again presented 1 year later. The dilemma involved differing perspectives on the student's academic effort. The interviewer then questioned them about the definition of the problem, a proposed action choice, justification of the action and evaluation of the feelings of the participants. Their responses were classified in 1 of 4 developmental levels and their proposed actions were also classified into 1 of 3 interpersonal styles. The results revealed that there was a need to express feelings in a more reciprocal way at time 2. There was a substantial difference with regard to the effect of variation in roles, where the children were more assertive in their orientation when suggesting action choices with a classmate then with a teacher. The children who are capable of expressing reciprocal communicative actions with peers often are more unilateral with teachers. The interpersonal orientations of their communicative strategies did not shift or vary with respect to the teachers to the same extent as with respect to peers.

Supplementary Listing of Articles

Gold in Gray: Reflections on Business' Discovery of the Elderly Market. Minkler, Meredith (1989) *The Gerontologist*, 29(1), 17-23.

The Impact of Divorce on Children's Academic Performance. Kaye, Steven H. (1988/89) *Journal of Divorce*, 12(1/2), 283-298.

Life-Cycle Models of Saving and the Effect of the Timing of Divorce on Retirement Economic Well-Being. Fethke, Carol C. (1989) *Journal of Gerontology*, 44(3), 121-128.

Humor and the Mastery of Living: Using Humor to Cope with the Daily Stresses of Growing Up. Martin, Rod A. (1988) *Journal of Children in Contemporary Society*, 20(1/2), 135-154.

Research on Love: Does it Measure Up? Hendrick, Clyde & Hendrick, Susan S. (1989) *Journal of Personality and Social Psychology*, 56(5), 784-794.

Parental Choice of Self-Care for School-Age Children. Hofferth, Sandra (1989) *Journal of Marriage and the Family*, 51, 65-77.

Reviewed by
Linda Zytner, BA

Clothing and Textiles

Future Needs for Faculty in Clothing and Textiles

Lind, C. (1989)
Clothing and Textiles Research Journal, 7(4), 49-56.

The purpose of this study was to provide data on the characteristics of current departments and anticipated needs for faculty in clothing and textiles. The study was sponsored by The Association of College Professors of Textiles and Clothing.

In recent years departments teaching courses in clothing and textiles have been challenged from a number of directions, including qualifications and/or lack of academic productivity of some faculty members. The evolving nature of the discipline and changing employment opportunities for graduates also suggest the need for accurate information.

The study found that the majority of academic units teaching clothing and textiles are from Home Economics departments with fewer than four faculty members teaching in each subject area. Anticipated retirement indicates a fluctuating but continuing demand for faculty who have terminal degrees. Future faculty will need different qualifications than the people they replace. Merchandising and other industry experience is important, as are teaching experience and research/publishing expertise. Some faculty hired in the last 5 years have lacked desired qualifications indicating that the pool of clothing and textiles professionals is not great enough to meet the current needs.

Chemical analysis of yellowing of stain resist finishes for carpets

Textile Chemist and Colorist, 21(4), 21-23.

Stain resist finished carpets have a tendency to yellow when exposed to heat, humidity, and xenon arc light which is present in accelerated laboratory weathering tests. The purpose of this research was to explore the causes for yellowing of nylon 6 and nylon 66 finished with phenolic and naphtholic base stain resistant finishes. Findings show that heat and humidity alone did not cause yellowing. Direct exposure to the xenon arc light was necessary before yellowing occurred on stain resistant treated samples. Samples not treated with the finish did not yellow. Nylon 6 finished samples yellowed more than the nylon 66 even though both samples had the same percent add-on. The possibility of a chemical change occurring to the finishes during accelerated weathering is discussed.

Social concerns of post-mastectomy women: Stigmata and clothing

Feather, B.L., Rucker, M., & Kaiser, S.B. (1989)
Home Economics Research Journal, 17(4), 314-324.

The purpose of this study was to explore post-mastectomy women's use of clothing as a method of coping with negative social connotations of malignancy and disfigurement. The authors hypothesized that in order to avoid being stigmatized, post mastectomy women employ techniques of "covering/passing". The data on clothing concerns and strategies were obtained from post-mastectomy women using mail questionnaires and personal interviews. Attributes of clothing that were problematic included bust emphasis, shoulder bareness, and lack of sleeves. Respondents also noted difficulties with back closures. Attitudes towards sexuality and concealment were examined along with attitudes towards appearance satisfaction as related to the most problematic garments — swimwear and nightwear. Attitudes towards sexuality were significantly related to concerns about presenting a good appearance in both swimwear and nightwear, whereas attitudes towards concealment were only significantly related to concerns about nightwear.

Imported apparel: Retail buyers' reasons for foreign procurement.

Sternquist, B., Tolbert, S., & Davis, B. (1989)
Clothing and Textiles Research Journal, 7(4), 35-40.

As initial assemblers of merchandise assortments, retail buyers play a critical role in determining what clothing will be available to consumers. This study examines retail buyers' reasons for procuring imported apparel. Sixty-nine retail buyers from specialty, department, and discount stores were the subjects of this study. All subjects strongly believed that imports offer better quality for price than domestic products do. There were significant differences between buyers in specialty stores and buyers in discount stores on the question of exclusive merchandise and private branding: specialty stores buyers indicated that these were important reasons for their buying imports.

Analysis of covariance and stepwise multiple regression were used to examine the influence of age, education, salary, and position experience upon buyers responses. Implications of these findings for domestic apparel manufacturers are discussed.

Supplementary Listing of Articles:

Presidential perspectives concerning home economics in higher education. Breen, N., & Driscoll, D. (1989), *Home Economics Research Journal*, 17(4), 281, 288.

Three types of laundry detergents: Performance in soft and hard water. Lovingood, R.P., Woodard, J.E. & Leech, I.E. (1989), *Home Economics Research Journal*, 17(3), 253-262.

Analyzing carpet samples for formaldehyde content. Tincher, W.C., Shepard, A.B. & Statham, D.L. (1989), *Textile Chemist and Colorist, 21*(5), 27-30.

Attitudes towards imported and domestic apparel among college students: The fishbein model and external variables. Shim, S., Morris, N.J. & Morgan, G.A. (1989), *Clothing and Textiles Research Journal, 7*(4), 8-18.

Upholstery fabric performance: Actual wear versus laboratory abrasion. Warfield, C.J. & Slaten, B.L. (1989). *Textile Research Journal*, 59(4), 201-208.

Reviewed by:
Mary Ann McCreight, MSc Graduate Student

Food and Nutrition

Relationship between nutrient intake, body mass index, menstrual function, and ballet injury

Benson, J.E., Geiger, C.J., Eiserman, P.A. and Wardlaw, G.M. (1989) *Journal of the American Dietetic Association*, 89, 58-63.

The effects of inadequate nutrition, menstrual dysfunction, and low body weight on the rate of ballet injuries were studied in 45 female dancers with a mean age of 18.7 years. Subjects completed food frequency questionnaires and were subsequently divided into three groups. Fourteen dancers were found to have an adequate diet of over 70% of the Recommended Daily Allowance (RDA) in the key nutrients and were treated as a control group. Thirty-one subjects had intakes of less than 70% of the RDA for the key nutrients iron, folate, vitamin B-12, zinc, and calcium. These dancers were randomly assigned to either a vitamin-mineral supplement or a placebo group. All subjects were surveyed monthly to gather information regarding dance-related injuries, menstrual function, height, and weight over a period of six months.

Irregular menses were experienced by 33% of all subjects. Although the age, height, and weight of the three groups were not significantly different, 47% of the supplemented group had irregular or absent menses, while 21% of the placebo group and 36% of the controls reported abnormal cycles. No differences were found between injury severity or type between the three groups. For the six month study period more bone injuries were found among dancers reporting abnormal menses. Dancers with a body mass index (BMI) under 19 spent more days with a low-grade injury than did those with a higher BMI. The authors concluded that there appears to be an association between dance injuries and both BMI and menstrual function.

A changing role for dietary monounsaturated fatty acids.

Mattson, F.H. (1989) *Journal of the American Dietetic Association*, 89, 387-391.

In this review article, the increasing evidence regarding the positive effects of dietary monounsaturated fatty acids on serum lipid levels is summarized. Diets replacing saturated fatty acids with monounsaturated fatty acids or polyunsaturates seem to be equally effective in lowering serum levels of LDL-C (low density lipoprotein-cholesterol), sometimes termed 'bad cholesterol'. However, the decrease in serum HDL-C (high density lipoprotein-cholesterol), or 'good cholesterol', that is seen with intakes of polyunsaturates was not seen with intakes of monounsaturates. Another study has shown that a high fat diet rich in monounsaturates may be at least equal to a diet low in fat for the control of serum cholesterol levels. These favourable changes in serum lipid values have been seen in both metabolic ward studies using formulated diets and in a free-living population consuming a food-based diet.

Although studies are, as yet, small in number, evidence continues to mount that diets low in saturates and high in monounsaturates may be effective for reducing risk of cardiovascular disease. It appears that the beneficial effects of a low-fat, high complex carbohydrate diet can be seen with a high-monounsaturated fat diet without the possible triglyceride elevation and without a decrease in the protective HDL-C. The mechanism by which monounsaturates exert these effects is still uncertain.

Oils high in monounsaturates and low in saturates include olive and canola. Selective plant breeding of other oil seeds has led to the development of high monounsaturated safflower and sunflower oils. While their use is presently seen only in some restaurants and institutions, demand for consumer-use products may result in their appearance in retail outlets.

Studies in the distribution of body fat. III. Effects of cigarette smoking

Shimokata, H., Muller, D.D. and Andres, R. (1989) *Journal of the American Medical Association*, 261, 1169-1173.

Cross-sectional and longitudinal associations between cigarette smoking, body mass index (BMI) and waist-hip ratio (WHR) were studied in 1122 men aged 19-102 years. Subjects were participants in the Baltimore Longitudinal Study of Aging with long-term changes being monitored twice within a three year period.

Smoking habits were found to differ with age. The percentage of smokers decreased while the percentage of ex-smokers increased as age increased. Cigarette smokers had significantly lower weights and BMIs than non-smokers among the younger men aged 19 to 44 years. The waist circumference and WHR in smokers was significantly greater than in non-smokers and increased steadily with the number of cigarettes smoked daily.

Smoking habits changed between visits for some men. As expected, smoking cessation resulted in a weight gain and starting to smoke led to a weight loss. Paradoxically, those starting to smoke had increased WHRs when a decrease would be expected due to the weight loss.

The authors concluded that both habitual smoking patterns and changes in smoking habits are associated with the pattern of body fat distribution. There appears to be a redistribution of body fat associated with smoking which results in a higher WHR and thus, an increased risk for developing cardiovascular diseases, diabetes, and death. Further research is required to determine the mechanism of this effect of cigarette smoking.

Fear of obesity among adolescent girls

Moses, N., Banilivy, M. and Lifshitz, F. (1989) *Pediatrics*, 83, 393-398.

A survey was completed of 326 adolescent girls attending high school in a suburban New England community. The

questionnaire was designed to elicit information regarding students' perceptions of their body weight, dieting behaviors, and nutrition knowledge level. Height and weight measurements were collected by the investigators.

Anthropometric assessment revealed that 36% of the girls were underweight, 47% were of normal weight and 17% were overweight for their height. Of the underweight students, 43% had a body weight 20% under the ideal for their height and 16% were 30% or more underweight. Of the overweight students, 39% were more than 20% overweight for height.

As many as 20% of the underweight girls were dieting, while only 54% of the overweight girls reported this behavior. Body weight concerns and anxieties were evident from the frequency of self-weighing reported, regardless of actual body weight. Self-weighing every other week or more frequently was reported by 55% of the sample. A distorted perception of ideal body weight for height was reported more often by underweight and normal weight girls. As many as 51% of the underweight adolescents reported extreme anxiety about being overweight and 36% were preoccupied with body fat. General nutrition knowledge did not seem to postively influence the attitudes or eating behaviors of the girls.

The authors concluded that fear of obesity was commonplace among the girls surveyed. Distorted perceptions of their ideal body weight may be an important contributor to their thin body weights and inappropriate eating attitudes and behaviors. The problem of fear of obesity is deeply entrenched in Western society due to the cultural value placed on thinness. This goal of thinness is promoted in terms of health and beauty by the mass media, the classroom and society, in general.

Nutrition in food advertising: Content analysis of a Canadian women's magazine, 1928-1986

Barr, S.I. (1989)
Journal of Nutrition Education, 21, 64-72.

To explore trends over time in food advertising, with particular attention to the emphasis placed on nutrition, 5175 food and beverage advertisements found in a monthly Canadian women's magazine were selected for study. Four magazine issues per year were coded from each of the 58 years studied. Advertisements were characterized by the type of food advertised and the promotional messages they contained.

Over time, categories of products advertised changed. Representation of dairy products steadily increased over time while protein foods (i.e. meat, fish, poultry, nuts, and legumes) only increased slightly. Foods of low nutrient density accounted for a greater proportion of advertisements in recent years. Desserts and foods high in fat and sugar represented almost 39% of total advertisements in the 1980s, an increase from about 10% in the early years studied. Beverage advertisements have approximately doubled over the six decades studied. Advertisements for food ingredients and condiments have decreased linearly with time.

Major changes have occurred in terms of the type of promotional statements used in food and beverage advertising. use of general health and nutrition statements steadily decreased. The trend has been away from statements about foods as sources of nutrients and towards statements indicating that certain substances have been minimized in the product. A recent upswing was noted in the percentage of advertisements stated or implied to be low in fat, light, caffeine-reduced, or containing no additives or preservatives.

In light of these results, possible strategies for marketing nutrition are outlined by the author for nutrition educators.

Supplementary Listing of Articles:

Relationship of body image and dietary intake of competitive ice skaters. Rucinski, A. (1989). *Journal of the American Dietetic Association,* 89, 98-100.

Listeriosis. Gellin, B.G. and Brome, C.V. (1989). *Journal of the American Medical Association,* 261, 1313-1320.

Safety of vitamin A. Bendich, A. and Langseth, L. (1989). *American Journal of Clinical Nutrition,* 49, 358-371.

Health-related characterisitcs and dietary intake of a selected sample of elderly Canadians. Martinez, O.B. (1989). *Journal of the Canadian Dietetic Association,* 50, 36-40.

Use of commercial and home-prepared strained infant foods: Comparison of mothers' reasons for use and cost. Tanaka, P.A., Yeung, D.L. and Anderson, G.H. (1989). *Journal of the Canadian Dietetic Association,* 50, 41-45.

The relationship of dietary and supplemental calcium to bone loss and osteoporosis. Walden, O. (1989). *Journal of the American Dietetic Association,* 89, 397-400.

Reviewed by
L.A. Wadsworth, MSc

Elspeth McLean-Wile

On the Job

Profile of a Home Economist as a Volunteer

Elspeth McLean-Wile

The concept of home economists working in agriculture is not new. In fact the roots of home economics in Canada are closely linked with rural communities and farm families. In the late 1800s Adelaide Hoodless of Hamilton, Ontario, a farm woman, championed the idea of applying science principles to daily homemaking activities. Her young son died after drinking contaminated milk and her passion for preventing other deaths resulted in a number of home economics training programs, including one at the Ontario Agricultural College.

My experience as a home economist in agriculture has afforded me the opportunity to do government extension work with the Department of Agriculture and Marketing, to work in the food processing sector, and most recently to return to the basic agricultural production unit — the family farm. In all cases my background in home economics has served as an excellent basis for these jobs.

For two summers I worked as a 4-H Summer Assistant for the Nova Scotia Department of Agriculture and Marketing. This was an experience in working with rural volunteers and a well established extension program. My responsibilities were in the area of organizing special summer activities including tours, exhibitions, 4-H achievement days, and new 4-H clubs. I planned judging classes, taught demonstration and public speaking techniques, judged crafts, clothing, and woodworking projects completed by the 4-H'ers and explained parliamentary procedure. This kind of work greatly helped me improve my interpersonal and organizational skills.

After graduating from university I accepted a newly created position with a dairy cooperative in the field of public relations. My work included presentations to schools and community groups, organizing the company's participation in food shows and exhibitions, answering consumer inquiries, distributing consumer information and recipes, preparing a shareholder/employee newsletter and working closely with the sales and marketing department. I served as a liason between the milk producer/shareholders and the dairy management. Through this I gained great insight into production and marketing problems of the dairy industry. My communications skills were tested along with my understanding of consumer and family behavior, nutrition, and food preparation and economics.

My experience with the dairy helped me realize that working in a business setting was exciting and challenging. The company was responsive to the marketplace and the demands of consumers and competitors. The constant drive for new product ideas and new opportunities really interested me. I quickly recognized that if I was to progress in this setting I needed more business skills especially marketing expertise. The decision was made to pursue an MBA.

The plan to return to school and eventually begin a career with a large company in an urban center was ended when I married a dairy farmer and moved to a small rural community. The concept of commuting to work in an urban center did not appeal to me; the best option for my husband Peter and I, was to expand the farm operation in a way that would allow

Elspeth McLean-Wile holds a BHEc from Mount St. Vincent University and a MBA from Dalhousie University. She is a partner in Wiles Lake Farm Market and Oak Lake Farms located in Bridgewater, Nova Scotia. She is the Past President of the Nova Scotia Home Economics Association and presently a CHEA Regional Director.

me to work on the farm. This option required that I become self-employed!

During the two year period I was studying I used every opportunity to formulate projects around the farm business expansion plans. By April 1985 we had a building design, a feasibility study, and a business plan. Bank financing had been secured. Our enthusiasm, excitement, and energy for the project seemed endless.

On August 17, 1985 Wiles Lake Farm Market opened. The market was designed as a retail fruit and vegetable store with an instore bakery. Since 1985 we have expanded the business to include a garden center. We sell a complete line of fruit and vegetables some of which we grow on our own farm and a larger portion of the fruit and vegetables we purchase from other Nova Scotia farms and wholesalers. In the garden center we sell seed, fertilizer, bedding plants, nursery stock, garden supplies, and chemicals. Our in-store bakery features bread made from scratch — no mixes! Our baked goods are based on traditional Nova Scotia family recipes. In addition to the breads, rolls, muffins, and biscuits, we make cookies, sweet breads, pies, and doughnuts.

On a day to day basis I am involved in all management activities of the market including sales, marketing, advertising, staffing, scheduling, inventory selection and control, and recordkeeping.

Operating a retail food business is a real test for one's home economics education. Strong communication skills are a prerequisite for successful sales and employee relations; an understanding of consumer behavior is crucial for effective marketing and sales; a knowledge of nutrition, food preparation, and meal planning become essential in offering point of purchase information; color and design are important to effective retail merchandising. The list is endless!

In addition to my work at the market, I am also a partner in our farm operation. In Nova Scotia, our dairy farm would be considered average in size. Our major source of income is from the sale of milk to a dairy cooperative in the province. We have a fruit orchard where we grow apples, pears, and plums and for the last four years we have grown a number of vegetable crops. As a partner in our farm operation I too have responsibilities. Peter and I discuss all major decisions related to both the farm and the market, although Peter is the farm manager. My duties include financial record keeping and management, crop planning, supervision of staff, field supervision, and a variety of other daily chores.

My interest in agriculture has lead me to become involved in International Development within my profession. Food issues are international in scope; as a primary producer and a home economist I feel I have much to learn about the food problems and their relationship with the development of the Third World. The ability of Canadian farmers to continue with existing agricultural practises will be more and more influenced by developments in the Third World. I have been involved with the Nova Scotia Home Economics Association/Malawi Home Economics Association twinning project for the last three years. I have had the opportunity to meet and work with home economists from the agricultural sector in Malawi. We do share many of the same problems and concerns; problems of production and marketing.

I expect my career will continue to evolve in the agricultural sector. There are many opportunities for our market to move into other areas and expand the current operation. However, our future in the dairy industry may not be assured in the long term. The Free Trade Agreement and the current GATT negotiations do bring into question the security of the supply management system in this country. Without supply management we may have a serious job in justifying the economics of dairy farming in this region. With cows or without cows, the challenges will continue and I am confident that home economics will continue to influence and shape my career. □

New Developments

Compiled by Ann Scott

... In Publications

Video on the Facts About AIDS

Knowing the facts about AIDS can enable a person to act in ways to prevent its spread and avoid unnecessary anxiety. But knowing the facts is not always enough. We must ensure that our youth develop the skills to deal with sexuality and an open dialogue on AIDS. They need help in learning how to deal with situations they will encounter in which they are unsure and subject to peer pressures.

For this reason, the Canadian Public Health Association has developed the video *AIDS: The New Facts of Life.* This video, built on the latest Canadian experience with AIDS, is designed for classroom use from grades 11 to 13.

Utilizing a newsmagazine format with teenage hosts, the video takes students through a number of segments including facts about the disease and how it is spread, question-and-answer quiz, dramatization of thought-provoking "real-life" situations, an interview with a person with AIDS, commentary by an AIDS expert and information about safer sex.

Accompanying the video is a teacher's manual which includes lesson plans, case studies and overhead/handouts. The video is available in VHS or Beta format for $49.95.

To order: Write to Aids Education and Awareness Program, Canadian Public Health Association, 400-1565 Carling Ave., Ottawa, Ontario K1Z 8R1 (613) 725-3769.

Food Irradiation Video

The video *Food Irradiation* is part of the International Consultative Group on Food Irradiation (ICFI) program sponsored by the Food and Agriculture Organization, the International Atomic Energy Agency and the World Health Organization of the United Nations.

The purpose of this program is to provide advice on food irradiation to governments, the United Nations Agencies, industry, professional organizations, and the public which could increase safe food supplies.

The video is available in both VHS and Beta format for $19.95.

To order: Write to Chromavision International Inc., 1166 Rainbow Street, Ottawa, Canada K1J 6X7 (613) 748-1071.

Career Information for At-Risk Youth

If at-risk youth can be shown that school is relevant to their later success as adults, they are more likely to complete their education. This is the important role career information plays.

This is explained in the January 1989 OSSC Bulletin *Career Information Motivates At-Risk Youth,* where information about career options can supply some of the motivation these youth need, because it encourages them to set career goals and then to attain the education and training necessary to achieve those goals.

In this Bulletin, Career Information System (CIS) is described and a rationale and techniques for reaching at-risk youth are identified.

The Bulletin, *Career Information Motivates At-Risk Youth* is available from the Oregon School Study Council for $5.00 (Quantity discounts are available).

Reducing the Risk: Using Career Information with At-Risk Youth is a 193-page publication containing 15 model programs identified through the survey, plus work plans, learning activities for students, and tips from counselors around the country.

Reducing the Risk is available from the National Career Information System for $12.95 per copy.

To order: Write to Oregon School Study Council or National Career Information System, 1787 Agate Street, Eugene, Oregon 97403 (503) 686-5045 or (503) 686-3872.

Journal on Program Evaluation

The Canadian Journal of Program Evaluation is now being published by The University of Calgary Press in April/May and October/November of each year.

Membership in the Canadian Evaluation Society (CES) entitles members to receive a complimentary copy of each issue of the Journal. Membership fee is $55 ($35 for students).

For information: Write to Kathy Jones, Executive Secretary, Canadian Evaluation Society, 309 James Street, Ottawa, Ontario K1R 5M8 (613) 230-1007.

Alternatives in Diapering

Alternatives in Diapering is a 16-page booklet compiled by Canadian professionals. It compares cost, convenience, incidence of diaper rash, and environmental impact of disposable diapers, diaper services, and home laundered diapers. The report describes some convenient cloth diaper products, such as Velcro-closing diapers and covers, and indicates where they are available. General diapering tips, information on prevention and treatment of diaper rash, and diaper laundering instructions are also given.

To obtain a copy: Contact your local health unit or send an address label and $1 for postage/handling to Alternatives in Diapering, c/o 7117 - 100 St., Peace River, Alberta T8S 1B1. Bulk copies are $.15 each.

... In Products

Microwave Ovens That Can Think

There is a whole new generation of microwave ovens that could make your life easier but the extra convenience does not come cheap!

For the new issue of *Canadian Consumer* magazine, Consumers' Association of Canada (CAC) tested eleven models of mid-sized microwave ovens, including some that require very little help from the cook to produce perfect results. But testers found the actual cooking performance of these user-friendly units was no better than that of ovens with manual settings, despite a considerable difference in price.

One of the least expensive ovens, the Emerson AT1100 at $330, lacked many of the automatic features of the more costly ovens, including the Panasonic genius NN-6808 at $600, yet the Emerson performed as well as the Panasonic. A features table accompanies the test article that will help you decide whether the extras are worth the money.

Source: News Release (1989, May). Consumers' Association of Canada, Box 9300, Ottawa, Ontario K1G 3T9 (613) 723-0187.

Is "Natural" Beef Better?

A variety of "natural", "organic", "residue tested", and even "old-fashioned" beef has come on the market recently.

"Consumers are being taken advantage of by slick marketing aimed at selling beef for a higher profit" states Dr. Ron Ball, Assistant Professor, Animal & Poultry Science, University of Guelph, as well as Assistant Professor, Human Nutrition, Faculty of Medicine, University of Toronto.

"There is no regulation or testing of so called Natural Beef and thus no protection for the consumer. Consumers are wasting their money on this product," concludes Ball.

Dr. Ball's opinion is substantiated by recent research conducted for the University of Guelph by the Health of Animals Laboratory in Saskatoon. Samples of regular and "natural" beef were tested for residues of five antibiotics as well as hormones, pesticides, PCB's sulphonamides and trace metals. The study found no differences in the residues for the two types of beef.

According to Dr. Ron Usborne, Department of Food Science, University of Guelph, "Consumers can purchase regular beef with confidence: they're buying essentially a residue-free product. On the other hand, if someone wants to pay up to 84 per cent more for products called natural, it's their choice." However, Usborne cautions that there is no standard definition, federal regulations or control of beef marketed as "natural". Based on Consumer & Corporate Affairs advertising guidelines, all fresh beef can be legally labelled "natural".

Source: News Release (1989), May). Beef Information Centre.

Baby Monitors

A nursery monitor is a useful addition to a baby's room. Consumers' Association of Canada tested seven models of these one-way electronic listening devices and found that not all monitors can be trusted.

The $52 Playskool Deluxe Baby monitor 5590, the only Canadian-made device tested, had the best sound quality, range, and versatility. It was sensitive enough to send out a signal equivalent to a baby's breathing over a distance of 40 meters.

At the other end of the performance scale were two monitors that were next to useless because of their poor sound quality. The Safe-T-Guard Baby Minder 00010 and the Realistic FM Wireless Room Monitor System 43-208 delivered static hiss, crackling from electrical appliances, and even radio programs that would drown out a baby's cry.

Source: News Release (1989, June 12). Consumers' Association of Canada, Box 9300, Ottawa, Ontario K1G 3T9 (613) 723-0187.

. . . In Ideas

Lean Meat Not a Health Risk

Red meats, popular foods in the diets of Canadians, can be part of a healthful pattern of eating. That is the conclusion of a recent report from the National Institute of Nutrition (NIN), a non-profit organization dedicated to advancing the knowledge and practice of nutrition in Canada. The report appears in the July issue of the Institute's publication entitled *IN REVIEW*.

According to the report's author, Dr. Jean Henderson Sabry of the University of Guelph, "consumer concern about the health effects of dietary fat and cholesterol have resulted in undue criticism of red meat. Eaten in moderate amounts as part of a balanced diet, lean meats contribute many essential nutrients to the diet."

Based on her thorough review of research commissioned by the Canadian Agricultural Research Council, Dr. Sabry concluded that red meat consumption by Canadians does not pose a risk for chronic diseases such as heart disease, cancer, or osteoporosis.

NIN President, Dr. Nancy Schwartz, explains that "changes in meat production practices in Canada over the last two decades have resulted in a substantial reduction in the fat content of meat."

"The focus of our advice to Canadians is reduction of fat, especially saturated fat, from all sources in the diet," says Dr. Sabry. "Canadians can achieve the current dietary goals of limiting intake of fat to 30 per cent of energy and saturated fatty acids to 10 per cent of energy without foregoing red meats."

NIN advises consumers to control their fat consumption from meat by trimming visible fat before eating, by reducing portion size, by limiting intake of high-fat cuts, by selecting low-fat processed meats and by using low-fat cooking methods.

Source: News Release. (1989, July). National Institute of Nutrition, 1565 Carling, Suite 400, Ottawa, Ontario K1Z 8R1 (613) 725-1889.

Double Your Iron

Your body absorbs more iron from a 3½ ounce (100 gram) serving of lean beef than from an entire eight ounce bag of spinach. But not all iron is created equal. Iron in foods is available in two forms, heme iron found in meat sources, and non-heme iron from vegetables, nuts and grains. The majority of iron in beef is in the form of heme iron; a form more easily utilized by the body. Heme iron absorption rates can be as high as 25 per cent whereas non-heme rates range between three per cent and 10 per cent. Consequently, while the nutrient tables indicate the iron content of spinach is higher than beef, most goes unabsorbed.

The presence of heme iron in the diet improves the absorption of non-heme iron. Therefore the logical course,

nutritionally, is to combine beef with spinach for an overall higher rate of iron absorption.

Source: News Release (1989, May). Beef Information Centre.

Maternal and Child Global Health

In the Third World, the multiple role of women as bearers, caretakers of children and producers of income exposes them to physical and mental health hazards, which differ from women in developed countries.

Pregnancy is associated with little risk in developed countries, however it is a major contributor to death in the Third World Countries. In Africa and Asia, half a million women die each year in childbirth.

Of the children in developing nations, many are low birth weight babies. Each year, 3.5 million children die from preventable disease.

Canadian Home Economists have the opportunity to improve the health of mothers and children in developing countries.

They have the knowledge and skills in the areas of family planning, prenatal and infant nutrition which would greatly benefit women in developing countries. Information and technology in child development, resource management, financial planning and business will help Third World women expand their options and make informed decisions about their lives.

Improvements could be obtained by sharing technical expertise and resources through twinning projects, learning more about Third World development issues and their connections with the policies of industrialized nations, making children and students aware of global issues, lobbying for policies which address Third World needs and lobbying for improvements in the status of women.

For more information: Contact your local International Development Committee or the CHEA International Development Program.

... In Trends

Ministry Shift to Health Promotion

The proposed Ontario government's shift in priorities from health care treatment, to health promotion and disease prevention, will have a significant impact on the dietetics profession, believes Mary Bush, the President of the Ontario Dietetic Association (ODA).

Recent initiatives carried out by the Ministry of Health, including the discussion paper, "Deciding the Future of Our Health Care", propose to strengthen and expand community-based health care projects such as community health centers, home care and independent health facilties. Nutrition should be a fundamental component of any health care program.

Under current funding distribution, approximately 65 per cent of Ontario's 1500 dietitians work in hospitals or other health care institutions, while just over 10 per cent are employed by health units or in community settings. With the government's new initiatives in health promotion more dietitians will counsel consumers on ways to modify their diet to reduce their risk of developing obesity, diabetes, high blood pressure, cancer or heart disease.

"Our vision of health includes seeing people live longer and in good health by selecting nutritious foods and maximizing their nutritional well being," said Bush. "We also believe the people of Ontario should have equitable access to affordable and appropriate food, as well as nutrition counselling."

Source: News Release (1989, May 12). The Ontario Dietetic Association, 100 Richmond St., East, Suite 200, Toronto, Ontario M5C 2P9 (416) 364-8005.

Hunger in Canada

The number of Canadians experiencing both poverty and hunger is increasing. "Eight years ago food banks were unknown in Canada and today there are over 300," reports Dr. Graham Riches, Professor of Social Work at the University of Regina. Dr. Riches' commentary on food banks appears in the July issue of *RAPPORT*, the quarterly publication of the National Institute of Nutrition.

According to the Institute, the growing number of Canadians experiencing poverty and its detrimental effects on health make poverty an issue requiring attention from all levels of society. Jennifer Welsh, Dean of Community Services, Ryerson Polytechnical Institute, explains in an article in *RAPPORT* that the consequences of hunger include decreased resistance to infection, reduced ability to recover from illness and negative effects on work performance.

"Today social assistance benefits fall below Statistics Canada poverty lines," says Dr. Riches. The majority of food bank users also receive social assistance which, according to Dr. Riches, "is concrete evidence of the collapse of the social safety net."

The National Institute of Nutrition believes that a key policy issue for the 1990's must be a response to the growing incidence of poverty and hunger.

Source: News Release (1989, July). National Institute of Nutrition, 1565 Carling, Suite 400, Ottawa, Ontario K1Z 8R1 (613) 725-1889).

School Board Nutrition Policies

Most people would acknowledge that there are people in Canada living below the poverty line, some of these are children, and some of these children are poorly nourished.

The scientific studies are not conclusive, but generally there is a tendency to link poor nutrition with poor performance in school. Hunger is often seen to go hand in hand with poor concentration, task completion, problem-solving and social interaction. In fact, recent studies have suggested a link between poor nutrition and reduced learning ability. In a 1987 study, reported in the National Education Association's pamphlet "The Relationship Between Nutrition and Learning", Alan Meyers and his colleagues found a statistically significant relationship between students having a proper breakfast and their scores on a standardized achievement tests.

Some educators see poor nutrition as a major problem in the educational system, while others question its significance.

The Canadian Education Association sent a questionnaire on food and nutrition to a sample 121 school boards. It consisted of 20 questions in two parts. Part I dealt with programs undertaken by the school board, the schools or other agencies to provide food for hungry students and Part II dealt with other aspects of nutrition policy, such as board

control over food sold on school premises, restrictions on the types of food used for fund raising, use of nutrition professionals, educational programs and policies and problems encountered.

Results of the survey showed that there are a great many approaches to the question of hunger and nutrition in the schools of Canada.

One of the more popular programs is to provide the pupils, especially elementary ones, with inexpensive or free nutritional supplements. Several boards strive to include all pupils, not just poor or needy ones, in these programs to avoid labelling. Many of the school boards cannot afford to pay for nutritional supplement programs themselves but receive help from community service clubs or community agencies.

Education in nutrition and health has long been included as part of the health, home economics/family studies, and physical education curricula in schools. Many educators see this as adequate, but others think that nutrition education is too important to be left to a few units scattered throughout the regular curriculum. As a result some boards have devised methods of including nutrition with a number of other courses. There is also a heavy concentration on teaching nutrition in elementary schools.

A great many schools undertake special events like "Nutrition Week" or other projects emphasizing nutrition and health. Some school boards have been able to hire professionals in the nutrition field to advise them about menus and food service and also to have input into the health and nutrition curriculum.

Excerpts taken from: Food for Thought: School Board Nutrition Policies and Programs for Hungry Children (1989). *CEA Information Note.* Canadian Education Association, Suite 8-200, 252 Bloor Street West, Toronto, Ontario M5S 1V5.

Caring for the Elderly — The Workplace Issue

Within the last year, family care benefits have come of age in the U.S. with corporations such as A.T.&T., IBM, General Foods, American Express and Proctor & Gamble recognizing the need and providing employees with eldercare benefits and educational support groups.

Jill Kelly, President of Complete Geriatric Care points out, "Although it will ultimately affect their bottom line, Canadian businesses are slow to recognize the impact that eldercare has on the workplace with few implementing the necessary programs to assist employees with their eldercare responsibilities.

A recent Statistics Canada study revealed that absenteeism from the workplace for personal or family reasons has increased 100 per cent in 10 years. It is estimated that 37 per cent of this increase in absenteeism is a result of time needed to care for an aging relative.

The phenomena and repercussions of the baby boom generation's responsibility for eldercare has been largely overshadowed during the past decade by the issue of child care. However, the children of our rapidly aging population are themselves between the ages of 35 to 54 and account for 83.9 per cent of Canada's workforce. it will be upon their shoulders that the increasing responsibility of caring for an aging relative will rest.

According to the Ontario government's white paper on health and social strategies for seniors, the number of people between the ages of 65 and 74 by the year 2001 will increase by an estimated 85 per cent with the over 85 group increasing by 110 per cent.

Jill Kelly of Complete Geriatric Care believes that corporations can address the issue of employee/eldercare givers through a two-tiered approach; education and employee benefits.

Education seminars can provide employee/eldercare givers with the ability to assess the care needs of an aging relative, provide an overview of available community resources, assist in establishing a support group within the company of other employee/eldercare givers and provide general information and regular counselling on issues pertaining to the elderly.

The real breakthrough, Kelly believes, will come when companies institute employee benefit programs that include provisions for eldercare costs, including care at home, extended unpaid leave of absences for eldercare, initial assessment and consultation fees and in-house educational and support group programs.

Source: News Release (1989, June). Complete Geriatric Care, 33 Falcon Street, Toronto, Ontario M4S 2P4 (416) 481-8384.

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UNDERGRADUATE WRITING COMPETITION

THE ELIZABETH FENIAK AWARD FOR EXCELLENCE IN WRITING

To encourage the best writing from those about to enter the profession of home economics, the Canadian Home Economics Association Foundation, in co-operation with the Canadian Home Economics Journal (CHEJ), offers the Elizabeth Feniak Award for Excellence in Writing.

ELIGIBILITY:

Undergraduate students in 3rd or 4th year from faculties of home economics, home economics education, family and consumer studies, human ecology, foods and nutrition, and related courses.

ENTRY CONTENTS:

An original paper, in English or French, maximum 2,000 words, reviewing recent research or new developments in one of the areas within home economics. It may be adapted from a seminar report or term paper, and must follow the CHEJ "Guide for Authors".

PRIZES:

Announcement of winners will be made in May, 1990. First prize — $200; Second prize — $100. The CHEJ may, at the discretion of the editors, publish the winning paper(s).

SUBMISSION DEADLINE:

No later than December 30, 1989, to: Canadian Home Economics Association Foundation, c/o Margaret B.C. Wallace, 8-2156 Sherbrooke St. West, Montreal, PQ H3H 1G7

FOR MORE INFORMATION, CONTACT:

Office of the dean/director/chair of faculties/departments of home economics/home economics education and related courses.

CONCOURS D'EXCELLENCE EN ÉCRITURE NIVEAU UNIVERSITAIRE PREMIER CYCLE

THE ELIZABETH FENIAK AWARD FOR EXCELLENCE IN WRITING

Afin d'encourager une bonne expression écrite pour ceux et celles qui entrevoient poursuivre une carrière en économie familiale, la Fondation de l'Association canadienne d'économie familiale, conjointement avec la Revue canadienne d'économie familiale (RCEF), offre le prix Elizabeth Feniak pour excellence en écriture.

ÉLIGIBILITÉ

Être étudiant et étudiante inscrit(e) en troisième ou quatrième année à un programme universitaire du premier cycle des facultés d'économie familiale ou d'économie familiale avec spécialisation en éducation, en études de la famille, en consommation, en alimentation-nutrition ou autres cours rattachés à l'économie familiale.

CRITÈRES

Un travail inédit, en fançais ou en anglais, de 2000 mots au maximum relevant les données de recherches et de développements les plus récents dans le domaine d'économie familiale. Ce travail peut être une adaptation d'un rapport de séminaire ou d'une dissertation; en plus, il doit répondre aux exigences du "Guide des auteurs" de la RCEF.

PRIX

1er prix 200 $, 2e prix: 100 $. Les gagnants/gagnantes seront annoncé(e)s en mai 1990. La RCEF, à la discrétion des rédactrices pourra publier les productions des gagnants/gagnantes.

DATE LIMITE D'ENVOI

Le 30 décembre 1989. Faire parvenir à: La Fondation de l'Association canadienne d'économie familiale, 8-2156, rue Sherbrooke ouest, Montréal (Québec) H3H 1G7 à l'attention de: Madame Margaret B.C. Wallace.

POUR PLUS DE RENSEIGNEMENTS:

Veuillez vous adresser au bureau de l'administration de votre faculté d'économie familiale ou autres facultés qui y sont rattachées.

Awards Bourses 1990

The Canadian Home Economics Association announces the following awards to outstanding home economics students, for the 1990-1991 academic year.

L'Association canadienne d'économie familiale annonce, pour l'année universitaire 1990-91, les bourses suivantes offertes à des étudiantes exceptionnelles en économie familiale.

Fiftieth Anniversary Scholarship — $4,000

Application deadline: January 15, 1990

This scholarship was established to commemorate the fiftieth anniversary of the founding of the Canadian Home Economics Association.

For a graduate in home economics who is a Canadian citizen or a landed immigrant and who is undertaking graduate study proceeding to a higher academic degree. The award will be based on scholarship, personal qualities, past and/or potential contributions to the profession of home economics, and financial considerations.

CHEA Scholarship Fund Award

Bourse du cinquantième anniversaire — 4 000 $

Date limite de candidature: 15 janvier 1990

Cette bourse a été créée pour commémorer le cinquantième anniversaire de la fondation de l'association canadienne d'économie familiale.

Elle s'adresse à une personne diplômée en économie familiale, citoyenne canadienne ou immigrante reçue, qui commence des études de second cycle en vue d'obtenir un diplôme supérieur. La bourse sera décernée en fonction des résultats universitaires, des qualités personnelles, des contributions passées et/ou possibles à l'égard de la profession de l'économie familiale, et de la situation financière.

Bourse du Fonds des bourses d'études de l'ACEF

Silver Jubilee Scholarship — $4,000

Application deadline: January 15, 1990

This scholarship was established to commemorate the twenty-fifth anniversary of the founding of the Canadian Home Economics Association.

For a graduate in home economics who is a Canadian citizen or a landed immigrant and who is undertaking graduate study proceeding to a higher academic degree. The award will be based on scholarship, personal qualities, past and/or potential contributions to the profession of home economics, and financial considerations.

CHEA Scholarship Fund Award

Bourse du vingt-cinquième anniversaire — 4 000 $

Date limite de candidature: 15 janvier 1990

Cette bourse a été créée pour commémorer le vingt-cinquième anniversaire de la fondation de l'association canadienne d'économie familiale.

Elle s'adresse à une diplômée en économie familiale, citoyenne canadienne ou immigrante reçue, qui commence des études de second cycle en vue d'obtenir un diplôme supérieur. La bourse sera attribuée en fonction des résultats universitaires, des qualités personnelles, des contributions antériures ou possibles à la profession et de la situation financière.

Bourse du Fonds des bourses d'études de l'ACEF

Mary A. Clarke Memorial Scholarship — $4,000

Application deadline: January 15, 1990

This scholarship was established as a tribute to Mary Clarke, a valued member of the Canadian Home Economics Association, and President from 1952-1954.

For a graduate in home economics who is a Canadian citizen or a landed immigrant and who is undertaking graduate study proceeding to a higher degree. The award will be based on scholarship, personal qualities, past and/or potential contributions to the profession of home economics, and financial considerations.

CHEA Scholarship Fund Award

Bourse commémorative Mary A. Clarke — 4 000 $

Date limite de candidature: 15 janvier 1990

Cette bourse a été créée en hommage à Mary Clarke, membre éminente de l'Association canadienne d'économie familiale, et présidente de 1952 à 1954.

Elle s'adresse à une diplômée en économie familiale, citoyenne canadienne ou immigrante reçue, qui commence des études de second cycle en vue d'obtenir un diplôme supérieur. La bourse sera attribuée en fonction des résultats universitaires, des qualités personnelles, des contributions antérieures ou possibles à la profession et de la situation financière.

Bourse du Fonds des bourses d'études de l'ACEF

GENERAL CRITERIA FOR ALL AWARDS/
CONDITIONS GÉNÉRALES À REMPLIR POUR TOUTES LES DISTINCTIONS

- Completed applications must be postmarked no later than the date given with the award description.
- Application forms are available from the CHEA National Office: 901-151 Slater Street, Ottawa, Ontario K1P 5H3 Tel: (613) 238-8817, Fax: (613) 238-1677
- Previous CHEA Scholarship winners are eligible to apply for 1990 awards provided they continue to be enrolled in graduate study.
- Applicants must be members of CHEA. Two years membership is necessary for the CSDA Awards.

- Les candidatures doivent être envoyées dûment remplies au plus tard à la date indiquée sur la notice de la distinction, le tampon de la poste faisant foi.
- On peut se procurer des formules de candidature au bueau nationale de l'ACEF: 901-151 rue Slater, Ottawa (Ontario) K1P 5H3 Tél: (613) 238-8817, Fax: (613) 238-1677.
- Les personnes qui ont déjà reçu une bourse d'études de l'ACEF peuvent de nouveau présenter leur candidature en 1990 à la condition qu'elles soient toujours inscrites en deuxième ou troisième cycle.
- Pour poster sa candidature, il fait être membre de l'ACEF. Il faut être avoir été membre pendant deux ans pour recevoir un prix de l'ACIBG.

Nestlé Enterprises Award — $1,000

Application deadline: January 15, 1990

For a graduate in home economics, who is a Canadian citizen or a landed immigrant and is undertaking graduate study proceeding to a higher degree. Special consideration will be given to a student undertaking post graduate study in foods. The award will be made on the basis of academic achievement, personal qualities, financial need and an intended career in the food industry.

Presented by Nestlé Enterprises Ltd.

Bourse des Enterprises Nestlé Limitée — 1 000 $

Date limite: 15 janvier 1990

Destinée à une diplômée en économie familiale, citoyenne canadienne ou immigrante reçue, qui commence des études de second cycle en vue d'obtenir un diplôme supérieur. La préférence ira à une candidate dont les études sont orientées vers l'alimentation. La bourse sera attribuée en fonction des résultats académiques, des qualités personnelles, des besoins financiers et de l'intention de faire carrière dans l'industrie alimentaire.

Offerte par les Enterprises Nestlé Limitée

Robin Hood Multifoods Limited Award — $1,000

Application deadline: January 15, 1990

For a graduate in home economics who is a Canadian citizen or a landed immigrant and is undertaking graduate study leading to an advanced degree. The award will be based on academic achievement, personal qualities, past and/or potential contributions to the home economics profession. Preference will be given to the person planning a career in business, in the consumer service (foods) field or food service management.

Presented by Robin Hood Multifoods Limited

Bourse Robin-Hood Multifoods Limitée — 1 000 $

Date limite: 15 janvier 1990

Destinée à une diplômée en économie familiale qui est citoyenne canadienne ou immigrante reçue et qui commence des études de second cycle en vue d'un diplôme supérieur. On attribuera la bourse en fonction des résultats académiques, des qualités personnelles, des contributions antérieures ou possibles à la profession. La préférence ira à une personne qui projette de faire carrière dans les affaires, les services aux consommateurs (alimentation) ou la gestion de services alimentaires.

Offerte par Robin Hood Multifoods Limitée

Meritorious Research Award — $1,000

Application deadline: April 30, 1990 *2 Awards*

For a graduate student in a Canadian university faculty or school of home economics or consumer studies, for a meritorious research paper presented at the time of the annual CHEA Conference. The paper must be in the general area of applied human nutrition or food quality and must not have been previously published. It should be published in the *CHE Journal* in the year following presentation. In addition to meeting specific research criteria, this research should be in keeping with the mission and aims of the Canadian Home Economics Association. Applicant must have been a CHEA member for at least two years, and application should be supported by recommendations from at least two people.

Presented by the Canadian Soft Drink Association.

Prix de mérite en recherche — 1 000 $

Date limite de candidature: 30 avril 1990 *2 prix*

Prix décerné à un ou à une étudiante de deuxième ou troisième cycle d'une université canadienne ou d'une école canadienne d'économie familiale ou d'études de consommation, pour une communication émérite présentée au congrès annuel de l'ACEF sur des recherches. La communication doit porter sur le domaine général de la nutrition humaine appliquée ou de la qualité alimentaire et ne pas avoir encore été publiée. Elle devrait être publiée dans la *Revue canadienne d'économie familiale* dans l'année suivant sa présentation. Ces travaux doivent répondre à des critères précis de recherche et être conformes à la mission et aux objectifs de l'Association canadienne d'économie familiale. Les personnes qui posent leur candidature doivent être membres de l'ACEF depuis au moins deux ans et être recommandées pau au moins deux personnes.

Ce prix est décerné par l'Association canadienne de l'industrie des boissons gazeuses.

Major Body of Research Accomplishments Award — $1,000

Application deadline: April 30, 1990

For a CHEA member in recognition of a major body of research accomplishments, to be presented at the Annual CHEA Conference. These accomplishments must be published and recognized research in the general area of applied human nutrition or food quality. In addition to meeting specific research criteria, the research must be in keeping with the mission and aims of the Canadian Home Economics Association. Applicants must have been a CHEA member for at least two years, and applications should be supported by recommendations from at least two people.

Presented by the Canadian Soft Drink Association.

Prix de reconnaissance pour un ensemble insigne de recherches — 1 000 $

Date limite de candidature: 30 avril 1990

Prix décerné à un membre de l'ACEF en reconnaissance d'un ensemble insigne de recherches et remis au congrès annuel de l'ACEF. Les travaux doivent avoir été publiés et homologués dans le domaine général de la nutrition humaine appliquée ou de la qualité alimentaire. Ils doivent répondre à des critères précis de recherche et être conformes à la mission et aux objectifs de l'Association canadienne d'économie familiale. Les personnes qui posent leur candidature doivent être membres de l'ACEF depuis au moins deux ans et être appuyées par au moins deux personnes.

Ce prix est décerné par l'Association canadienne de l'industrie des boissons gazeuses.